

MODULAR BATTERY CHARGER

USER MANUAL

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Designed and Manufactured in Australia by Ampcontrol CSM Pty Limited.







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Safety and other Warnings

<p>WARNING!</p> 	<p>This safety alert symbol identifies important safety messages in this manual and indicates a potential risk of injury or even death to the personnel. When you see this symbol, be alert, your safety is involved, carefully read the message that follows, and inform other operators.</p>
<p>CAUTION!</p> 	<p>This safety alert symbol identifies important information to be read in order to ensure the correct sequence of work and to avoid damage or even destruction of the equipment, and reduce any potential risk of injury or death to the personnel.</p>
	<p>Supplementary information not directly affecting safety or damage to equipment. Carefully read the message that follows, and inform other relevant personnel.</p>
	<p>Information concerning possible impact on the environment and actions required for prevention and proper response.</p>

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Ampcontrol CSM Pty Ltd will make no warranties as to the contents of this documentation and specifically disclaims any implied warranties or fitness for any particular purpose.

Ampcontrol further reserves the right to alter the specification of the system and/or manual without obligation to notify any person or organisation of these changes.

Before You Begin

We would like to take a moment to thank you for purchasing the ABCM Single Phase Battery Charger.

<p>WARNING!</p> 	<p>To ensure the correct and safe operation of this equipment the user is to become completely familiar with the safety requirements and correct operating procedures detailed in this user manual.</p>
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If this document is being read via a computer the hyper links may be used (Press control and click on the [blue highlighted](#) text to go to that topic).

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1 Receiving and Storage

1.1 Receiving

All possible precautions are taken to protect the equipment against damage or losses during shipment, however before accepting delivery, check all items against the packing list or Bill of Lading. If there are shortages or evidence of physical damage, notify Ampcontrol immediately.

Notify Ampcontrol within 7 days (maximum) in case of shortages or discrepancies, according to the packing list. This action will help ensure a speedy resolution to any perceived problems. Keep a record of all claims and correspondence. Photographs are recommended.

Where practicable do not remove protective covers prior to installation unless there are indications of damage. Boxes opened for inspection and inventory should be carefully repacked to ensure protection of the contents or else the parts should be packaged and stored in a safe place. Examine all packing boxes, wrappings and covers for items attached to them, especially if the wrappings are to be discarded.

1.2 Storage after Delivery

When the equipment is not to be installed immediately, proper storage is important to ensure protection of equipment and validity of warranty.

All equipment should be stored indoors protected from the elements in a cool dry area. If storing on the ground, ensure that the storage area is not an area where water will collect.

When applicable correct handling and fork lift procedures must be in place to ensure that any crates and pallets are moved safely.

1.2.1 Storage and Care of Batteries

In the users' interest the storage period should be as short as possible. The temperature has an impact on the self-discharge rate hence it is important to store the batteries in a fully charged condition in a cool but frost-free room

The batteries will be shipped already installed inside the cabinet for smaller assemblies but could be shipped separately for the larger assemblies; the storage instructions are similar. In the case of assemblies with the battery already installed; Ensure that the positive cable remains disconnected and insulated (as shipped).

The batteries are delivered filled, charged and ready for connection. If the batteries are not to be installed immediately they are to kept in clean dry rooms as described in [Section 1.2](#), previously.

CAUTION!

Open circuit batteries lose part of their capacity due to self discharge (2% per month at 20° C); a float recharge is recommended at least every six months. Float recharge consists of applying a voltage of 2.27 V/cell for approximately 48 hours.

1.3 Unpacking of Equipment

The method of packing used will depend on the size and quantity of the equipment. The following cautions should be interpreted as appropriate.

CAUTION!



Take care when unpacking crates as the contents may have shifted during transport. Make sure that cable drums are securely attached to their shipping pallets before attempting to move them.



The disposal of packaging materials, replaced parts, or components must comply with environmental restrictions without polluting the soil, air or water. Ensure that any timber and cardboard used as packaging is disposed of in a safe and environmentally responsible manner. Where possible, dispose of all waste products i.e. oils, metals, plastic and rubber products by using an approved recycling service centre.

2 Overview of Equipment

The Ampcontrol ABCM Single Phase Battery Charger uses a switched mode rectifier unit that employs state of the art technology. The battery charging function is monitored by a compact PLC that protects the system. The following photo is an example of a typical Ampcontrol charger and battery unit. The battery charger and PLC are housed in the upper cabinet and the batteries are secured in the lower cabinet.



Representative picture of typical battery charger assembly showing batteries, charger and controller.

The DC output is fully regulated, short circuit protected and monitored against over voltage, under voltage and earth fault.


A graphical display is the user interface to the charger and allows monitoring of all main voltages and currents as well as acting as a fault indicator.




3 Installation

3.1 Mechanical Installation

After unpacking the crates and packages as described in Section 1.3 the battery charger must be transported using appropriate lifting equipment to the intended installation area. The battery charger may be supplied with or without the batteries and enclosure/s (depending on the client purchase order) but these mechanical installation instructions should still serve as a general guide.

<p>WARNING!</p> 	<p>The lower cabinet is attached to a special base frame which is fitted with slots intended to accept the tines of a fork lift truck. This is the only safe way to lift and transport the assembly</p>
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When the cabinet is correctly positioned, such that the incoming and outgoing cables are not impeded in any way and adequate personnel and maintenance clearance is available around the cabinet (including any statutory allowance for when the doors are open) the cabinet must be bolted to the ground.

<p>WARNING!</p> 	<p>The lower cabinet must be firmly secured to the ground or its support structure, and the upper cabinet must be firmly attached to the lower cabinet using appropriate fasteners. This is essential to maintain the structural integrity of the assembled cabinets.</p>
--	---

3.2 Electrical Installation

After the termination of incoming cables (including earth) and the outgoing cables to the appropriate terminals, check all cable connections for tightness including the interconnection of the cables between printed circuit boards.



It is important to note that during shipment the positive terminal(s) of the included batteries have been insulated and disconnected from the battery terminal(s) for safety reasons – reconnect these terminals with care.

The batteries are delivered filled, charged and ready for connection. No operation such as filling, commissioning or other type is required. They need only be connected as required by the particular application.

If the batteries were delivered separately from the cabinet install them in the cabinet starting from the lowest level first to ensure stability.

3.3 Commissioning

Open all circuit breakers (CB1, Fb1, Fb2, F1, F2, F3 and F4).

Turn on DC power supply, battery circuit breaker (Fb1).

The PLC controller should now power up. The LCD will display [Screen 1](#)

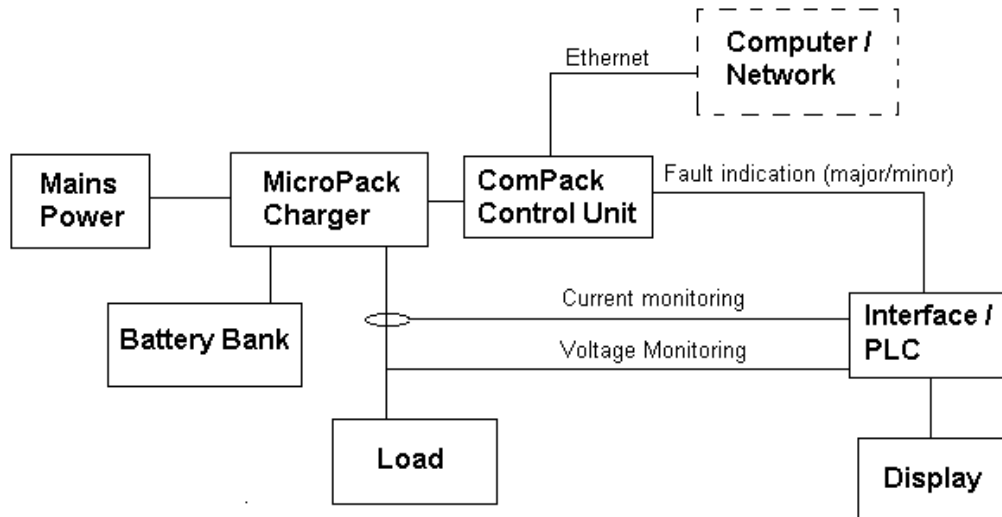
Next, close the AC input power circuit breaker CB1. This will activate the rectifier system and start to charge the battery in 'FLOAT' mode. At this stage there should still be a fault alarm from the LCD display.

Turn on the load circuit breakers F1 through F8 as required. The alarm should no longer be displayed on the display panel. The charger will now start supplying the loads and charging the battery bank/s.

The 'Values' screen display ([Screen 2](#)) indicates the output DC voltage, load current and an earth fault alarm, if enabled and valid. At this stage the charger should begin to top up the batteries.

4 Technical Description

The charger and battery assembly comprises a battery charger with a 'Compack' controller, a monitoring PLC, interface circuits and batteries, as illustrated below:



Both input and output circuits of the battery charger are protected by circuit breakers. The charger is protected against sudden overloads at the output. Circuit breakers or fuses, depending on the application, will clear short circuits.

The battery is charged in the constant voltage mode with current limit. In the boost charge mode, the charging current limit does not change but the voltage will rise to the boost level. The constant voltage, boost voltage and current limit can be set to produce optimum charging times whilst protecting battery life.

The graphical display has a number of viewable screens or pages displaying voltage and current measurements and any minor or major faults. Minor faults indicate an abnormal situation and major faults indicates an alarm situation. The alarm levels for minor and major faults can be adjusted as required using the Compack controller.

5 Operation

5.1 Screen Colours

5.1.1 Normal Screen

The normal screen colour is black text on a steady, full green background as shown in Figure 5.1.1.a.

The screen illustrations used in the following instructions show the text on a white background as shown in Figure 5.1.1.b.



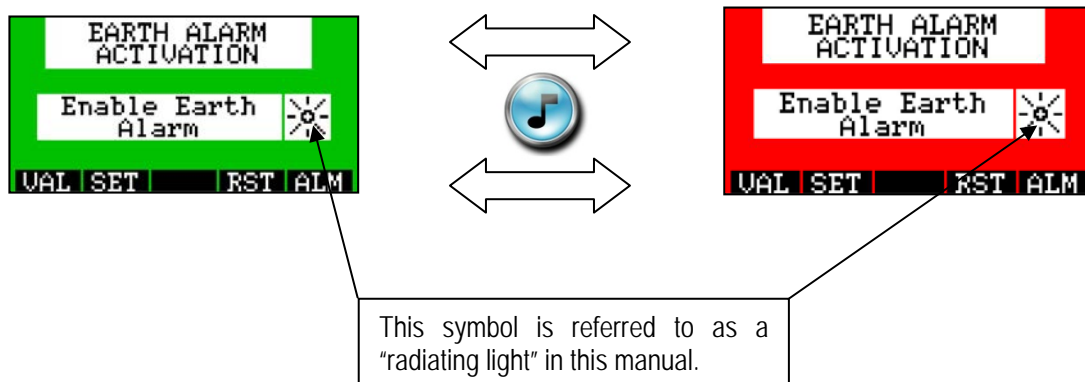
Figure 5.1.1.a.



Figure 5.1.1.b.

5.1.2 Alarm Situation

An Alarm (Warning) status is indicated by the screen colour flashing alternately between green and red. This is accompanied by an audible alarm while the situation exists.



Each alarm indicator is displayed as a black dot when the alarm is off and is a radiating light when the alarm is activated.

5.2 List of Display Screens

The user interface guide is stated as below:

Screen 1	Welcome Page
Screen 2	Values
Screen 3	Setup
Screen 4	Under Voltage Select
Screen 5	Alarms

5.2.1 Screen 1 – Welcome Page

Screen Display



The top of the screen displays the Ampcontrol® logo.

The first line of text describes the model battery charger.

The next line down describes the load voltage (24 or 48) and the software version number.

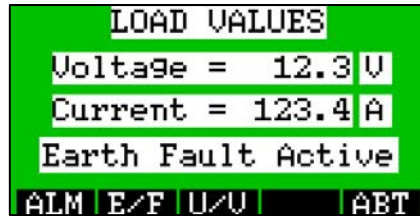
The bottom line describes the machine status (OK = Charger is ready to operate).

Function Buttons

- F3 will move to 'Values' ([Screen 2](#))

5.2.2 Screen 2 –Values

Screen Display



The top line describes the Screen Title

The next line down describes the load voltage.

The next line down describes the load current.

The bottom line describes the earth fault alarm status.

Function Buttons

- F1 will move to 'Alarms' ([Screen 5](#))
- F2 will move to 'Setup' ([Screen 3](#))
- F3 will move to 'Under-voltage' ([Screen 4](#))
- F4 has no function in this screen
- F5 will abort the action and return to 'Welcome' ([Screen 1](#)).

5.2.3 Screen 3 - Setup

Screen Display



The top two lines describe the feature being setup.

The next two lines down describe the status. A radiating light symbol appears if the feature is enabled.

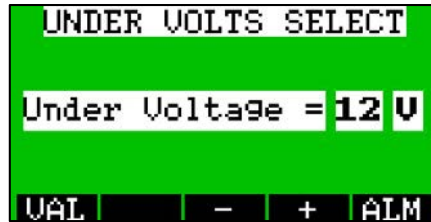
Function Buttons

- F1 will move to 'Values' ([Screen 2](#)).
- F2 will SET (enable) the earth alarm.
- F3 has no function in this screen.
- F4 will RESET (disable) the earth alarm.
- F5 will move to 'Alarms' ([Screen 5](#)).

The 'Earth Alarm' will be actuated if the charger detects an Earth fault.

5.2.4 Screen 4 – Under Voltage Select

Screen Display



The top line identifies the feature selected (Under Volts Select).

The next line down displays the setting for the Under Voltage Alarm.

Function Buttons

- F1 will move to 'Values' ([Screen 2](#)).
- F2 has no function in this screen.
- F3 will decrease the trip setting by 1 volt for each press of the button.
- F4 will increase the trip setting by 1 volt for each press of the button.
- F5 will move to 'Alarms' ([Screen 5](#)).

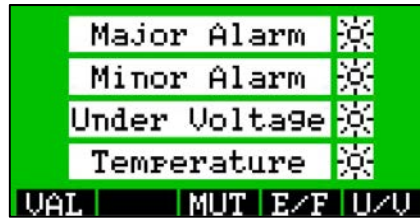
The range of settings for actuation of the 'Under Voltage' (U/V) alarm is limited to:

For the 24 V chargers: 23 V through to 26 V.

For the 48 V chargers: 46 V through to 52 V.

5.2.5 Screen 5 – Alarms

Screen Display



The top line signals a 'Major Alarm' or 'No Major Alarm'.

The next line down signals a 'Minor Alarm' or 'No Minor Alarm'

The bottom line signals a 'Temperature Alarm'

Function Buttons

- F1 will move to 'Values' ([Screen 2](#)).
- F2 has no function in this screen.
- F3 will mute the alarms.
- F4 will move to 'Setup' ([Screen 3](#)).
- F5 will move to 'Under Voltage Select' ([Screen 4](#)).

A 'Major Alarm' will be actuated if the charger detects:

Battery Voltage Major High
Battery voltage Major Low
Battery Quality Major Alarm
Battery Voltage Bank Major High
Battery Voltage Bank Major Low
Battery Current Major High
Battery Current Major Low
Battery Circuit Breaker Off
Mains Fail Low
Rectifier Error

A 'Minor Alarm' will be actuated if the charger detects:


Battery Voltage Minor High
Battery voltage Minor Low
Battery Quality Minor Alarm
Battery Voltage Bank Minor High
Battery Voltage Bank Minor Low
Battery Current Minor High
Battery Current Minor Low
Load CB Off

A 'Temperature Alarm' will be actuated if the charger detects an over temperature condition by means of the temperature probe.

6 Settings and Calibration

6.1 Changing Settings

All settings are made in the factory prior to shipping. Most of these settings are made to suit the customer specifications at the time of placing the purchase. However there are some functions that the user may vary to suit the application. The monitoring and control unit within the battery charger is fitted with an Ethernet port to permit limited user interface. Refer to the Compact Controllers User's Guide in [Appendix B](#) for more information.

<p>CAUTION!</p> 	<p>This unit was set up in the Ampcontrol factory to meet specifications agreed to between Ampcontrol and the purchaser. It is therefore advisable to contact Ampcontrol CSM to discuss any proposed changes to the 'As Sold' unit prior to implementing the changes..</p>
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Settings that are designed into the system build, set in the factory, and may not be changed after the unit has left the factory are the system voltage (24V or 48V) and the rated current of the battery charger.

6.2 Calibration

All calibrations are set during factory testing and may not be adjusted in the field.

6.3 Battery

6.3.1 Battery Type

This charger is intended for Lead Acid type batteries.

6.3.2 Nominal Voltage of Battery Charger

This parameter is factory set and represents the type of charger. (24 V or 48 V)

6.3.3 Rated Current of Battery Charger

This parameter is factory set and is determined by the size of the charger.

6.3.4 Battery Charging Current Limit

The maximum charging current is factory set in consultation with the customer.

The battery supply voltage and load current are displayed and monitored on [screen 1](#) of the display panel.

7 Alarms

The alarms listed in this section are included as standard supply. Other alarms may have been included at the customer's request. Please check purchase order to confirm.

7.1 Fault Notification

A detected alarm will cause the alarm LCD on the facia to flash green and red alternately while sounding an audible alarm. Also the relevant alarm relay(s) on the PLC de-energises, depending on the type of alarm.

To silence the alarm press any key on the keypad. The display will continue to flash green and red alternately. The alarm can be cleared when the problem causing the alarm is rectified. If there is more than one condition causing an alarm, all problems will need to be rectified.

7.2 Types of Alarm Indicated on the LCD Display

7.2.1 Major Alarm:

Mains Fail	No Battery	Earth Fault
Over Voltage	Over Voltage Relay	Low Voltage Warning
Under Voltage	Under Voltage Relay	

7.2.2 Minor Alarm:

Over Voltage	Under Voltage	Earth Fault
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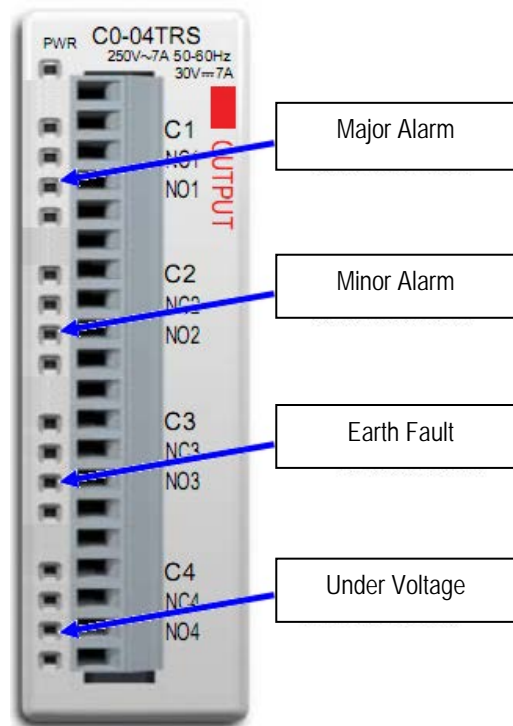
The "Mains Fail" alarm will clear and reset itself when the incoming AC supply is restored.


7.3 Alarm Output Relays

Four output relays provide the following alarms.

Major Alarm, Minor Alarm, Earth Fault, Under-voltage.

	<p>Major and Minor Alarm relay trip levels are configured via the Eltek Ethernet Controller (see Annex B on page 28 for details). The Earth Fault and Under Voltage trip points are provisioned via the front panel interface and are controlled internally by the PLC (refer to Section 5 of this manual for navigation and controller use information).</p>
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	<p>The standard supply will comprise four relays. Contact Ampcontrol if extra are required.</p>
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8 Part Numbers

ABCMB005 143136 ABC Switch Mode Battery Charger User Manual

Please contact customer service for any further information.

9 Specifications

9.1 Supply Volts

85-290 VAC 50-60 Hz

Power Factor > 0.98 at 50% load or more

9.2 Output Voltage Range Available:

24 VDC and 48 VDC.

9.3 Open Current Range Available

10 Amps and 30 Amps

Output Current Limit: > 100%

9.4 Static Voltage

Regulation: $\pm 0.5\%$ from 10% to 100% load

9.5 Voltage Indication

Regulation: $\pm 0.5\%$ from 10% to 100% load

9.6 Current Indication

Tolerance: $\pm 10\% \pm 1A$

9.7 Efficiency

Efficiency: Up to 90%

9.8 Output Ripple Voltage (RMS)

<1%, full load with battery if its capacity is >40% of (10h x charger rated current)

9.9 Ambient Temperature:

0 - 50°C continuous (Battery life will be shortened at temperatures above 40°C)

9.10 Humidity:

Operating: 20% to 90% RH non-condensing

Storage: 10% to 95% RH non-condensing

9.11 Protection:

The unit is protected against surges in primary voltage and short circuits.

The output circuits are protected with circuit breakers.

9.12 Power Conversion:

Switched mode power rectifier with active power-factor correction.

9.13 Battery Types:

Virtually Sealed Lead Acid (valve regulated accumulators)

9.14 Factory Settings:

Nominal Voltage

Rated Output Current

9.15 Menu Controls:

F1, F2, F3, F4 and F5 control the screen display, alarm buzzer and settings.

9.16 Metering:

All control functions are monitored and voltage and current are metered on the LCD display.


9.17 Alarm Relay Contacts:

Four relay outputs N/O or N/C.

Rated at 7 A; 6-27 VDC / 6-240 VAC.

9.18 Ventilation:

The rectifier units are cooled by natural convection.

CAUTION! 	Ensure that any vents in the enclosure are not blocked or covered over. Ensure that the enclosure is positioned such that the airflow into and out of the enclosure is not inhibited in any way and that the ambient air temperature is suitable for cooling (preferably less than 40°C).
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9.19 Enclosure:

Can be supplied mounted on a standard Pan for installation in an existing enclosures or supplied in a mild steel or stainless steel enclosure

9.20 Applicable Standards

The following standards are referenced for the manufacture of the battery charger:

AS/NZS 3000:2007 Electrical Installations (Known as the Australian/New Zealand Wiring Rules)
AS/NZS 3350.2.29:1996 Safety of Household and Similar Electrical Appliances-Particular Requirements-
Battery Chargers.
AS/NZS 3100:2009 Approval and Test Specification- General Requirements for Electrical Equipment.
AS 4044 – 1992 (battery chargers for stationary Batteries)

Other referenced standards are as follows:

EMI Conduction & Radiation:	EN55022
Harmonic Current:	EN61000-3-2,-3
EMS (Noise) Immunity:	EN6100-4-2, -3, -4, -5, -6, -8

Electrical Safety:

IEC 60950-1
UL 60950-1
CSA 22.2

EMC:

ETSI EN 300 386 V1.3.2
EN 61000-6-1 (immunity, light industry)
EN 61000-6-2 (immunity, industry)
EN 61000-6-3 (emission, light industry)
EN 61000-6-4 (emission, industry)

Environment:

ETSI EN 300 019-2-1 Class 1.2
ETSI EN 300 019-2-2 Class 2.3
ETSI EN 300 019-2-3 Class 3.2
ETSI EN 300 132-2
RoHS Compliant

10 Trouble Shooting

If problems are experienced with the battery charger without indication of an alarm, turn the charger off and check the incoming supply and load/battery circuits. Make sure the mains supply has sinusoidal shape and there is not a high frequency emitting source in the vicinity. Turn the charger on again, as per the installation instructions.


If further problems are experienced with the charger, use the following table to assist with fault finding.

Fault Finding Chart

Symptom	Cause	Remedy
Major Fault alarm		
Battery Voltage Major High	Faulty Compack controller or rectifier	Replace Compack controller or rectifier
Battery voltage Major Low	Batteries are not receiving charge.	Restore power to the Compack rectifiers.
Battery Quality Major Alarm	Battery Quality is low.	The Batteries need replacing with new ones.
Battery Current Major High	Charging current to the batteries is too high.	Check for wiring faults. Batteries are incorrectly sized for the charger. Check Compack controller settings.
Battery Circuit Breaker Off	Battery circuit breaker has been tripped or turned off.	Check for wiring or battery faults.
Mains Fail Low	Incoming AC supply has been turned off.	Restore AC supply.
Rectifier Error	Internal fault with the rectifier	Replace rectifier with a spare. Contact Ampcontrol CSM for further information.
Minor Fault alarm		
Battery Voltage Minor High	Check Compack settings	Replace controller or rectifier
Battery voltage Minor Low	Batteries are not receiving charge.	Restore power to the Compack rectifiers.
Battery Quality Minor Alarm	Battery Quality is getting low.	The Batteries will need replacing with new ones at earliest convenience.
Battery Current Minor High	Charging current to the batteries is getting too high.	Check for wiring faults. Batteries are incorrectly sized for the charger.
Load CB Off	One of the load distribution circuit breakers has been tripped or turned off.	Check for wiring faults. Load too large.
DC Over Voltage Alarm	Internal fault	Check internal and external connections. Replace faulty PCB boards (send charger to Ampcontrol)
DC Under Voltage Alarm	Discharged battery	Check AC supply. Check battery distribution CB is 'ON'. Check external load. Should not exceed maximum charging current. Check charging circuit
Over Temperature Alarm	Blocked ventilation.	Improve Ventilation
	External loads too high	Check current of external loads and adjust accordingly
Earth Fault Alarm	Positive or Negative DC supply rail is connected to earth	Find and remove the connection to earth that is producing the fault.
AC Supply Circuit Breaker is off	Rectifier Fault	Check for short circuits before energising.


11 Maintenance & Disposal

11.1 Equipment Maintenance

<p>CAUTION!</p> 	<p>The ABCM Battery Charger has no user serviceable parts. All repairs must be carried out by Ampcontrol personnel only. If a fault develops return the faulty component to Ampcontrol for repair. If the source of the fault is not known, please contact Ampcontrol for assistance. It is essential that no attempt be made to repair the charger or its components as any attempt to dismantle or repair them can seriously compromise the integrity of the unit and may result in its total failure.</p>
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The ABCM Battery Charger does not have any customer serviceable parts and is not provided with any user adjustments.

11.2 Disposal of System Parts

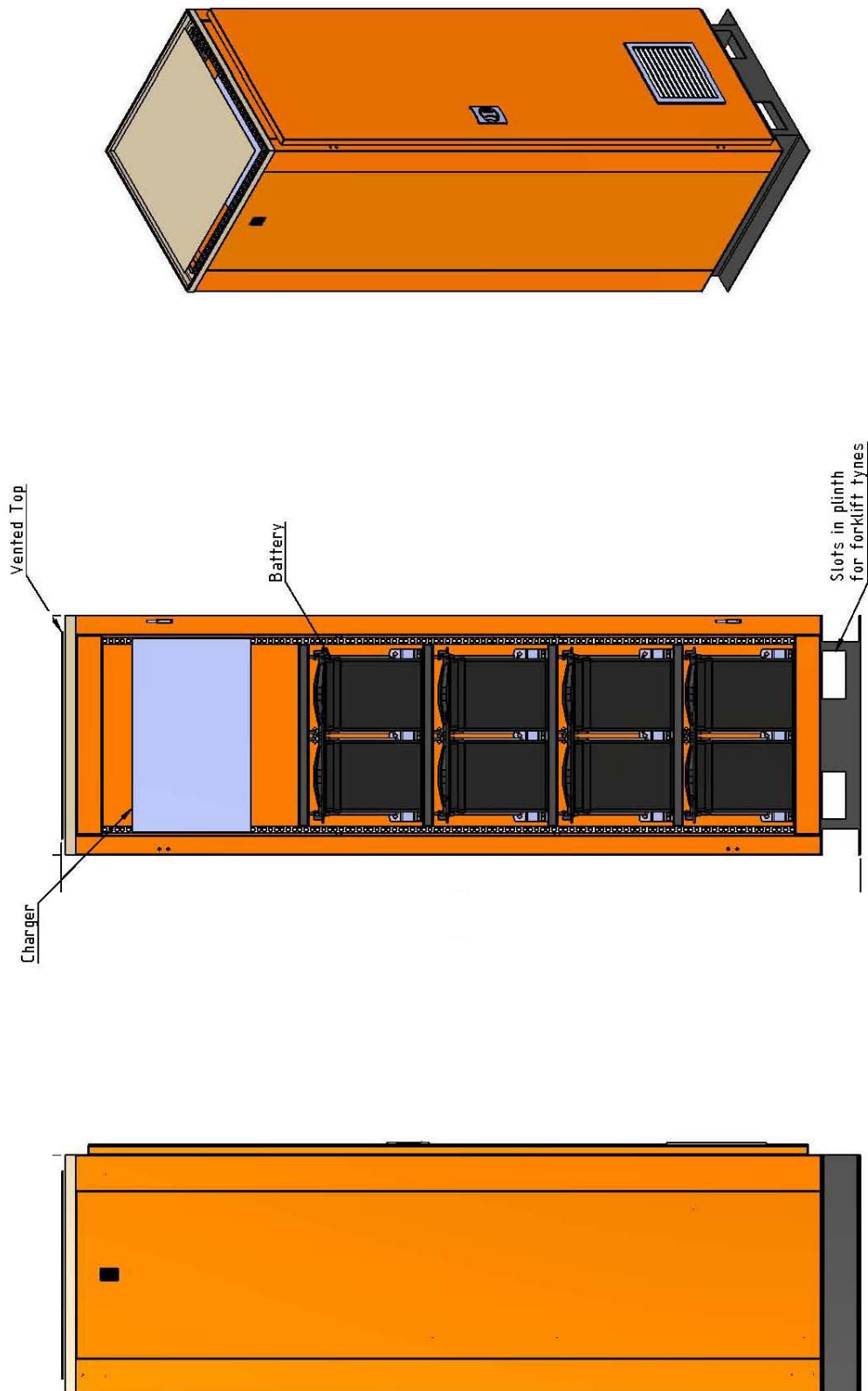
	<p>The electronic equipment discussed in this manual must not be treated as general waste. By ensuring that this product is disposed of correctly you will be helping to prevent potentially negative consequences for the environment and human health which could otherwise be caused by incorrect waste handling of this product.</p>
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Appendix A – Drawings

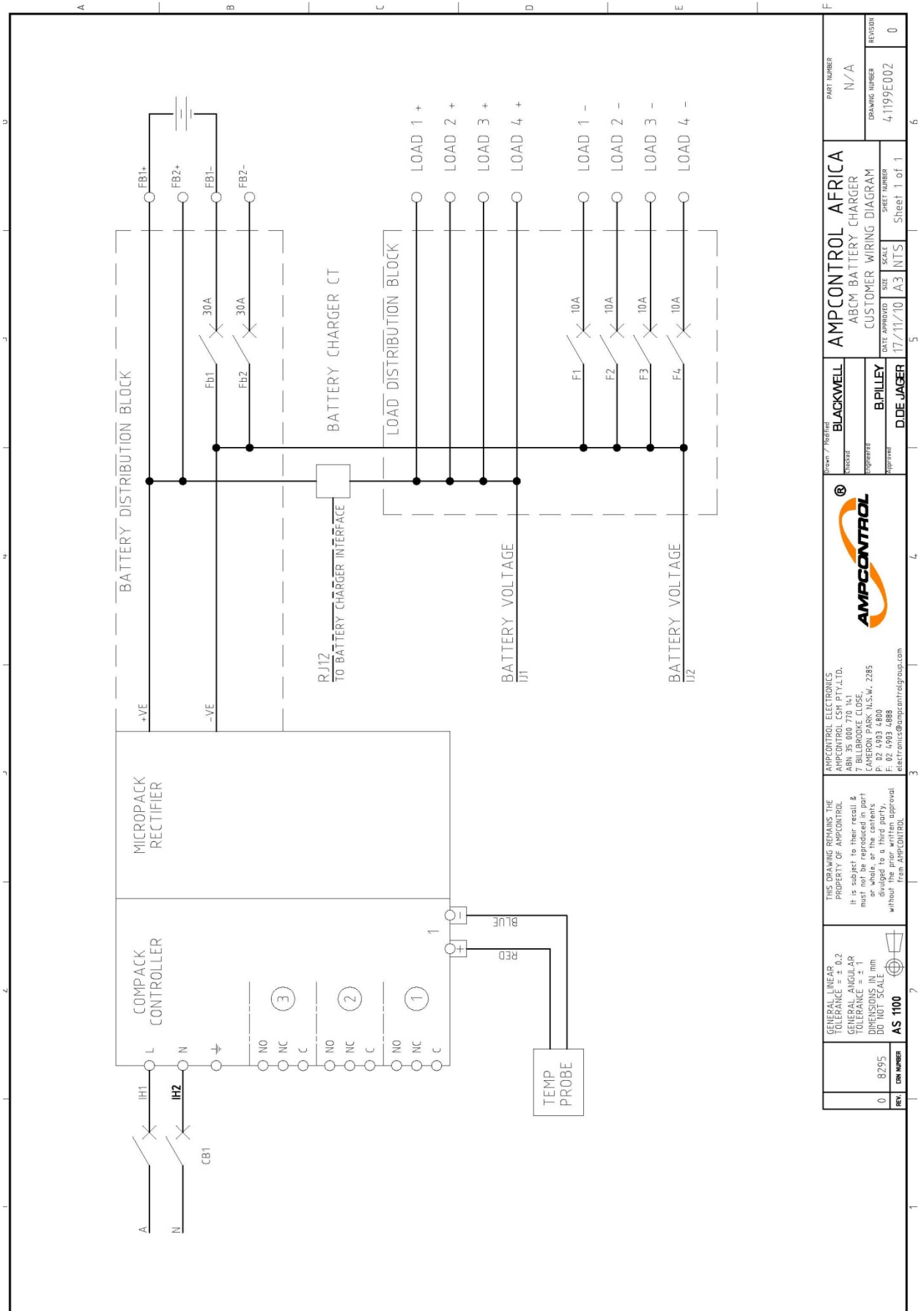
Drawing Number	Description
ABCM SKETCH	Charger Assembly Enclosure – Pictorial Sketch
41199E002	Customer Wiring Diagram

The drawings appear in the following pages in the same order in which they are listed in the table above.

If this document is being read via a computer the hyper links may be used (Press control and click on the drawing number to go to that drawing).



REPRESENTATIVE SKETCH ONLY.
Contact Ampcontrol for details of weights and dimensions





ABCM Modular Battery Charger
Issue: R1, Date: 06/2011, CRN: 8745



ABCM Modular Battery Charger
Issue: R1, Date: 06/2011, CRN: 8745

Appendix B – Compact Controllers User's Guide

User's Guide

Compact Controllers



Monitoring and Control Units

Micropack DC Power Supply Systems

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Safety Precautions

- ☒ The equipment described in this manual must only be operated by Eltek Valere personnel or by persons who have attended a suitable Eltek Valere training course
- ☒ The equipment represents an energy hazard and failure to observe this could cause terminal injury and invalidate our warranty
- ☒ There are hazardous voltages inside the power system. As the modules incorporate large charged capacitors, it is dangerous to work inside the system even if the mains supply is disconnected
- ☒ Products into which our components are incorporated have to comply with a number of requirements. Installation is to be in accordance with the recommendations herein
- ☒ Please read the manual carefully before using the equipment

350011.013 Issue 1.0, 2009 March

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Mfm

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1. Introduction

The *Compack* controller is a powerful and cost-effective module, developed for monitoring and controlling *Eltek Valere's Micropack* DC power supply systems, which are DIN rail mounted and suitable in low power applications.

The controller is also used in larger *Eltek Valere's Compack*-based power systems.

About this Guide

The booklet describes the *Compack* controller's building blocks, external connections and technical specifications. The booklet also provides the users of *Micropack* DC power systems with the required information for connecting the system to a network.

Read also the generic documentation for your *Micropack* DC power system.

For detailed functionality description, browse and search through the *WebPower Online Help* and *PowerSuite Online Help* files.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

System Diagram — Micropack Power System

In the *Micropack PS* system shown in Figure 1, the *Compack* controller monitors and controls the whole system. Via the Ethernet port, the controller facilitates system configuration using a Web browser locally or remotely via Internet.

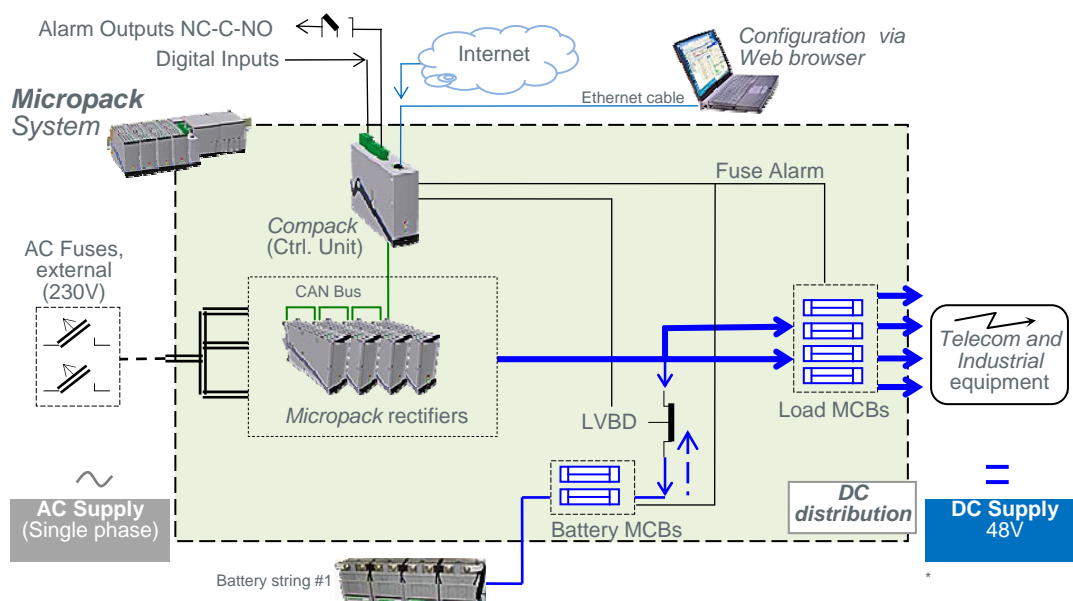


Figure 1 Example of a typical *Micropack PS* system used as a DC power supply for telecom and industrial equipment. The system is fed from an external AC mains supply, and consists of rectifiers, a control unit and DC distribution unit with LVBD contactor, all mounted on a DIN rail. External battery bank can be connected.

2. The Compack Controller

The *Compack* controller is a DIN rail mounted monitoring and control unit used in the *Eltek Valere's Micropack* DC power systems. The controller is also used in larger *Eltek Valere's Compack*-based power systems.

It monitors and controls the whole system, and implements several network protocols for local and remote system configuration via Web browser and existing network management system (NMS).

Using the UDP tunnelling protocol, the powerful *PowerSuite* application may also be used for system configuration from a local or remote Internet connected personal computer.

See also chapter "Technical Specifications", on page 8.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

Key Features

- ✓ LEDs for local visual alarming (Major, Minor, Power ON)
- ✓ Ethernet for or remote/local monitoring and control via Web browser
- ✓ SNMP protocol with TRAP, SET and GET on Ethernet. Email of TRAP alarms
- ✓ 3 programmable relay outputs for "traditional" remote monitoring
- ✓ 3 programmable multipurpose inputs (temperature, "digital inputs" or analog signals)
- ✓ Comprehensive logging
- ✓ Automatic battery monitoring and test
- ✓ Battery lifetime indication
- ✓ Battery used and remaining capacity (Ah or %) monitoring
- ✓ User defined alarm grouping (Boolean logic for grouped alarms)
- ✓ Uploading and downloading of configuration files with *PowerSuite* (Windows™ application) or Web browser



Block Diagram

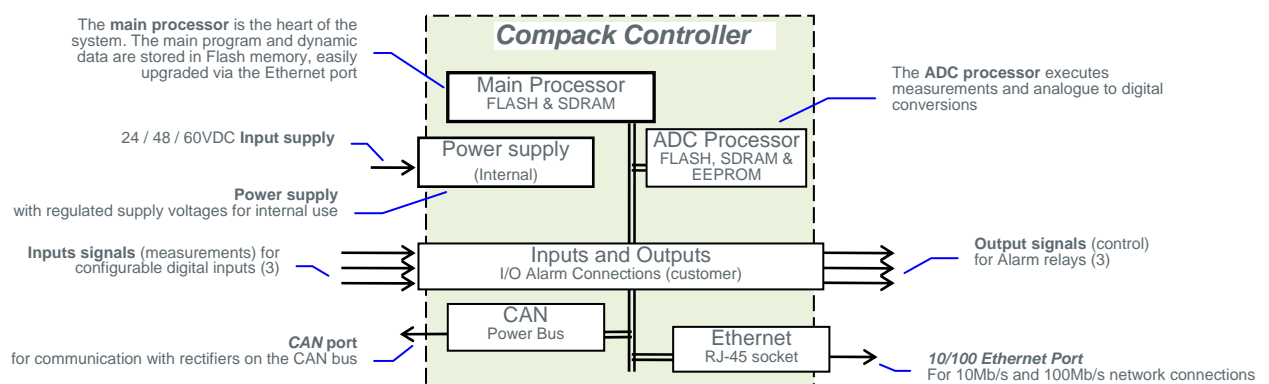
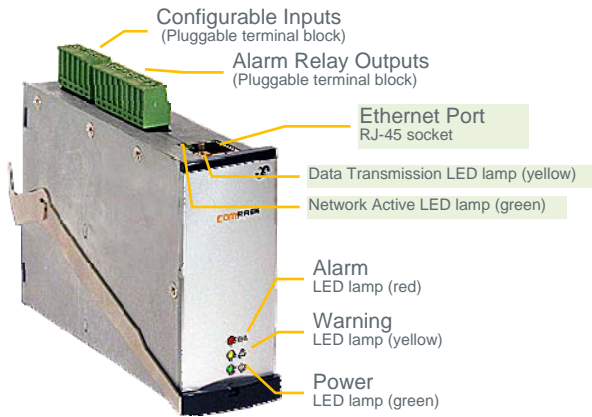


Figure 2 Block diagram of the Compack controller showing the module's main functions

Location of Terminals, Ethernet Port and LEDs

You can easily connect the *Compack* controller to an Ethernet networked computer, plugging a standard Ethernet cable to the RJ-45 socket on top of the controller and to any available Ethernet socket on the network.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).



The *Compack* controller can also be connected directly to a computer using a standard Ethernet cable (straight-through or crossover cable, as the controller's port implements HP Auto MDI/MDI-X detection and correction).

For Ethernet network addressing, read also chapter "Networking the Compack Controller", page 10.

The *Compack* controller is configured from factory with ID number "1" for CAN bus communication. Read chapter "About Control Units", page 35.

Figure 3 Location of I/O terminals, Ethernet port and LED lamps.

The *Compack* controller's I/O cables are connected to pluggable terminal blocks located on the controller's top. These connections are used for monitoring and controlling the status of external equipment, using configurable inputs and voltage-free alarm relays contacts.

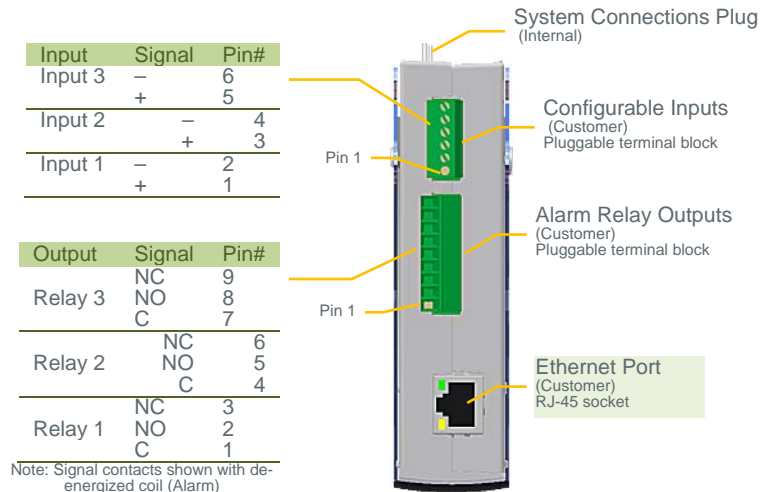


Figure 4 Pluggable terminal block connections on a Compack controller

LED indicators

The *Compack* controller has the following LED indications:

- Alarm (red) indicates an alarm situation (major alarm)
- Warning (yellow) indicates an abnormal situation (minor alarm)
- "Power" (green) indicates that the power supply is ON or OFF

Mounting and Removing the Controller

Get acquainted with the safety precautions on page 2, before installing or handling the equipment.



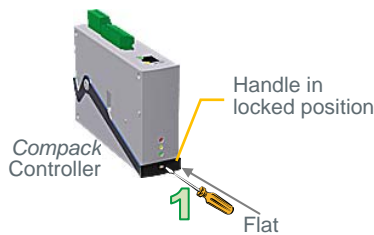
CAUTION: Do not hand-carry the controller by the handle. **Open the handle before plugging** the controller into the system.

Mount **blind panels** in unused module locations.

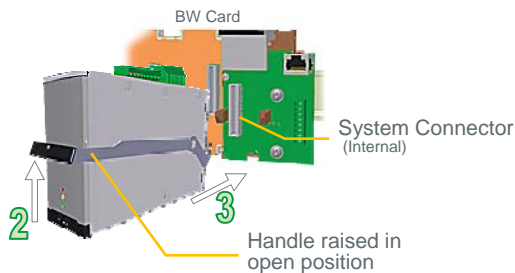


The *Compack* controller incorporates a handle that serves to lock the module into position in the *Micropack* PS System.

Mounting the *Compack* controller



1. **Open the handle** by inserting a screwdriver into the hole to release the spring mechanism
2. **Raise the handle** carefully until it reaches the stop-knobs on the sides (open position)
3. **Plug the module** fully into the system connector, mounted on the Battery Distribution Base or the Bulk Feed Output Base
4. **Lock the handle** by pushing the handle downwards (locked position), so that the module is securely locked



Removing the *Compack* controller

1. **Open the handle** by inserting a screwdriver into the hole to release the spring mechanism
2. **Raise the handle** carefully until it reaches the stop-knobs on the sides (open position)
3. **Pull the module** loose from the system connector. Do not pull from the handle!
4. **Lock the handle** by pushing the handle downwards (locked position)

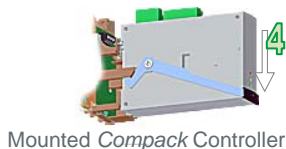


Figure 5 *Compack* controller's locking mechanism

Technical Specifications – Controllers

Specifications	
Input Voltage	Tolerances: 17-75 VDC Shutdown: < 15 VDC
Temperature Range	Nominal: -20 to +60 °C (-4 to 140 °F) Reduced accuracy: -40 to +75 °C
Power Consumption	3W
MTBF	> 550, 000 hours Telcordia SR-332 Issue I, method III (a) (T _{ambient} : 25 °C)
Dimensions (HxWxD)	70 x 30 x 110mm / 2.7 x 1.2 x 4.33"
Weight	240g / 0.53 lbs
Ethernet port	10/100 BASE-T
Relay Outputs (1.5 mm ²)	Form-C (dry contact NO-C-NC) 60V / 1A breaking capacity
Configurable Inputs (1.5 mm ²)	"Digital": open/closed Analogue: 0-75V Temperature: External NTC

Remote Monitoring and Control

- ✓ **PC running PowerSuite**
Through a Windows™ based communication program installed on a remote computer the system can be monitored and controlled via Ethernet network (UDP "Tunnelling")
- ✓ **PC running a WEB Browser**
Detailed web pages for monitoring, configuration, diagnostics and log access
- ✓ **NMS/OSS Platform via SNMP**
MIB file supplied for Network Management System (NMS) monitoring through Ethernet on SNMP v2c
- ✓ **Software upgrades / Network setup**
Via Ethernet port with EV Network Utilities application. DHCP assigned IP address is default enabled
- ✓ **E-mail**
All TRAPS can also be sent as emails to two user specific email addresses

Data Logging

- ✓ **Event log**
Up to 10 000 events stored
- ✓ **Data log**
7 user selectable analogue or calculated time stamped values can be logged with configurable interval (normal and critical interval) up to 10 000 times
- ✓ **Energy log**
52 times back energy Wh (kWh) stored on hourly, daily and weekly basis. Rectifier or Solar Charger supplied and Load consumed
- ✓ **Battery temperature log**
Battery life time indication based on recorded temperature in 10 temperature ranges with multiplying factor for reduced lifetime
- ✓ **Battery test log**
Last 10 battery test results with test type, test duration [min], average discharge current [A], discharged capacity [Ah], test result quality [%] and detailed discharge curves with minute by minute current and voltage

Control Features

Control System

- Output Voltage Measurement
- Load Current Calculation
- Energy Calculation
- Load/Battery Disconnect
- Real Time Clock with Battery Backup
- Stored Site Text/ID and Messages
- Position (long/lat) for auto placement
- Generator start/stop control setup
- Test of Relay Outputs
- Alarm grouping of events for relay outputs
- Boolean AND of alarm groups

Battery

- Battery Current Measurement
- Battery Temperature Measurement
- Battery Testing (acc. to discharge table or set time limit)
- Setup of Battery Data/Table
- Battery Capacity Indication
- Battery Boost Charging
- Auto – Ah discharge or voltage threshold
- Interval or Manual
- Temperature Compensated Charging
- Charge Current Limitation
- Battery Low Voltage Disconnect
- Temperature dependent (optional)
- Mains independent (optional)

Rectifier

- Available information about each rectifier, e.g. serial number, version, internal temperature
- Individual Rectifier Current Measurement
- Individual Rectifier Input Voltage
- Efficiency Management
- Emergency Voltage
- Startup delay
- Detailed internal alarms summary

Alarms / Events available

Alarms can be set up with monitoring of minor and major levels. Hysteresis and time delay is user configurable. All average and peak levels on analogue values are auto logged.

Power & Control System

- AC Mains Low (2-level)
- AC Phase Voltage x3 (2-level)
- "Digital" Inputs (programmable descriptions)
- Events trigger by inputs
Service mode (block relays), Generator running, Lower charge current limit, Battery test, Boost inhibit, Emergency low voltage, Clear manual reset alarms.

Load

- Load Disconnect
 - Voltage or Timer (from mains failure) based
 - Mains independent (optional)
- Load Fuse
- Load Current

Battery

- Battery Voltage (4-level, optional 8-level)
- Battery Temperature (2-level)
- Battery Used Capacity (2-level) [Ah or %]
- Battery Remaining Capacity (2-level) [Ah or %]
- Battery Fuse
- Symmetry Failure (2-level) – Only with BM Can Node
- Battery Quality after test (2-level)
- Battery Current (4-level)
- Battery Life Time (2-level) [from temperature log]


Rectifier

- Rectifier Failure (2-level)
- Rectifier Capacity (2-level)
- Rectifier Current (2-level)
- Rectifier Avg. Temperature (2-level)
- Rectifier Current Share (2-level)

Specifications are subject to change without notice

242100.400.DS3- vA

Firmware Upgrade of the *Compack* Controller

You can use the “*Eltek Valere Network Utility*” program  running on a PC to upgrade the *Compack* controller’s firmware.

Use this utility program, “*EVIPSetup.exe*”, to find your controller’s firmware version, or access the controller’s configuration pages in a Web browser.

Do following:

1. **Connect a PC to the *Compack***
Read chapter “Networking the *Compack* Controller”, page 10
2. **Start the program “*EVIPSetup.exe*”,**
on the computer;

On the “*Eltek Valere Network Utility*” program:

3. **Select the *Compack* controller**
that you want to update; Check correct MAC address and IP address
4. **Click the “Update Software” button**
5. **Click the “Browse” button,**
and select the firmware file (s19-format) in the computer.
The “Reboot when complete” check box must be checked (marked)
6. **Click the “Update” button**
the utility will download and update the firmware to the *Compack* controller with the selected IP address

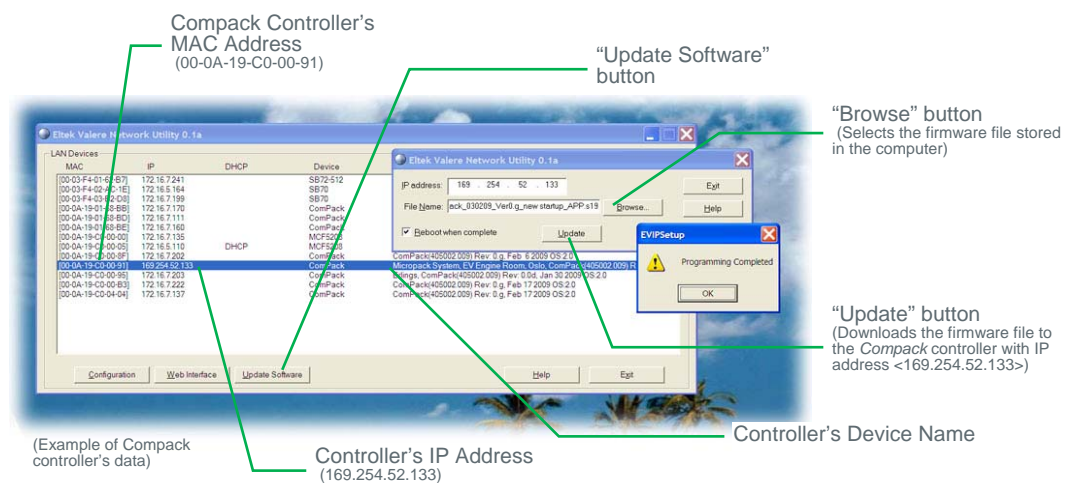



Figure 6 The “*Eltek Valere Network Utility*” program

While the firmware is downloaded to the *Compack* controller, the utility program displays a progress bar.

Once the firmware has loaded, the *Compack* controller must restart. It will restart automatically, because you left the “Reboot when complete” check box checked (marked).

 You can visit www.eltekvalere.com to download the “*Eltek Valere Network Utility*” program, or contact Eltek Valere’s Service Dep.

3. Networking the Compack Controller

This chapter describes how to access the *Compack* controller from a computer, so that you can configure and operate the *Compack*-based DC power supply system.

After accessing the controller, you can read chapter "Configuring & Monitoring the Power System", page 24. For more detailed description of configuration options and other advanced networking services implemented by the controller, refer to the *WebPower Online Help* file that you can download with the controller's firmware.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

You can access the *Compack* controller using a standard computer, which is either connected to an existing LAN or directly connected to the controller.



Figure 7 Controller's access via LAN and via a stand-alone computer

Compack Controller's Default Networking Data

Each *Compack* controller is shipped with a unique Eltek Valere MAC address (Media Access Control) stored inside the controller and marked on the controller's label.

Compack controllers have by default the Dynamic Host Configuration Protocol (DHCP) enabled. Thus, the controller can automatically obtain necessary access data to operate in an existing Local Area Network (LAN), based on the Ethernet communication technique and the TCP/IP protocol suite.

Note that the controller is shipped without a fixed IP address (IPv4).

Controller Access — Via Ethernet LAN

If you have access to a Local Area Network (LAN) — based on the Ethernet communication technique and the TCP/IP protocol suite — you can simply connect the *Compack* controller to the LAN, and get Web browser access to the controller from your networked computer.

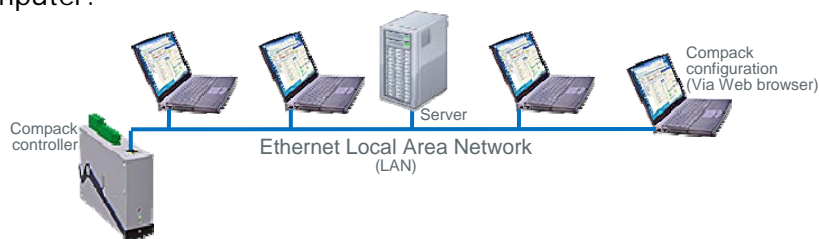


Figure 8 Controller's access from a computer connected a LAN

Requirements

- Computer correctly configured and connected to the LAN
- Standard Ethernet cable (straight through cable),
to connect the controller to the LAN
- "Eltek Valere Network Utility" program,
that you can download with the controller's firmware from
www.eltekvalere.com

Contact your LAN administrator, if your computer has difficulties accessing the network.

In Short

To get access to the *Compack* controller via your LAN networked computer, just connect the controller to the LAN, which will automatically assign an IP address to the controller. Using the "*Eltek Valere Network Utility*" program, identify the controller, access it via your Web browser and change the controller's LAN device name, to facilitate later identification.

The "Controller Access — Via Ethernet LAN" procedure involves following steps (as described in more detail in the next chapter):

1. Start the "Eltek Valere Network Utility" program
2. Connect the *Compack* controller to the LAN
3. Identify the controller in the "*Eltek Valere Network Utility*" program
4. Access the controller's configuration pages in your Web browser
5. Log in with the <admin> account
6. Change the controller's Device Name

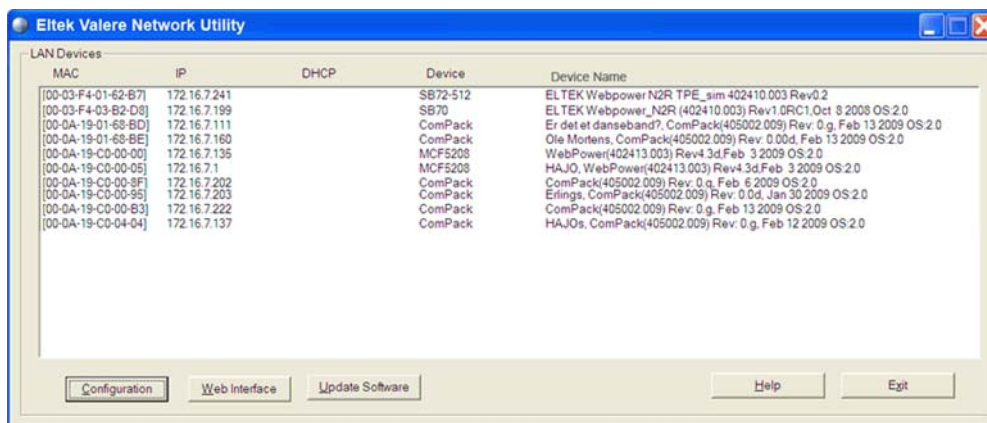
For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

Read also chapter "Compack Controller's Default Networking Data", page 10.

More Detailed

Carry out the following steps to access the *Compack* controller via the Ethernet LAN:

1. **Start the "*Eltek Valere Network Utility*" program**
by opening the file "EVIPSetup.exe", which will display already connected LAN devices. The *Compack* controller will be displayed after connection to the LAN.



(Example of connected LAN devices)

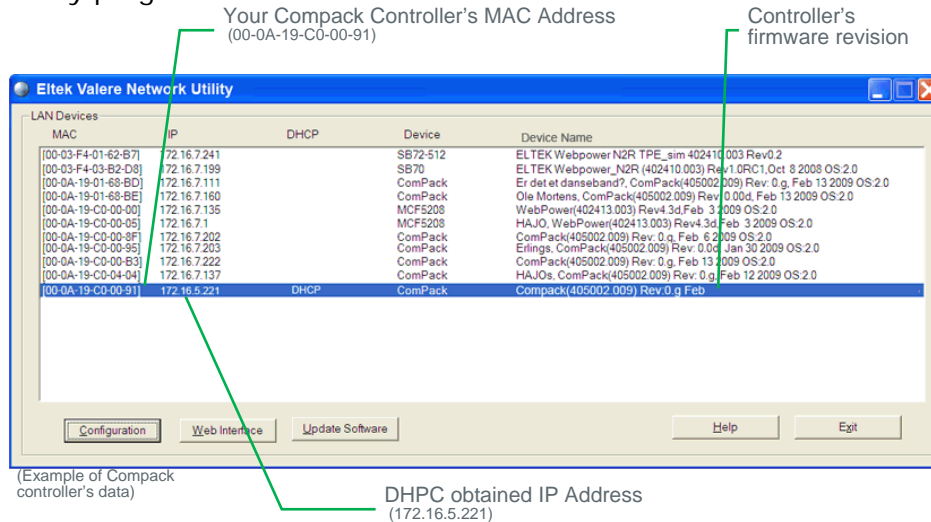
2. **Connect the *Compack* controller to the LAN**
plugging one end of a standard Ethernet cable (straight through Ethernet cable) to the controller's RJ-45 socket on its top, and the other end to one of the LAN's available RJ-45 sockets. See "Figure 8", page 10.

The controller automatically obtains an IP address from the LAN server, as the controller's DHCP protocol is enabled from factory.

3. **Identify the controller in the “Eltek Valere Network Utility” program** by looking for your *CompPack* controller’s MAC address on the list of connected LAN devices.

All controllers are shipped with a label specifying its unique MAC address. Check that the displayed MAC address corresponds to the MAC address label on the controller

Note that it can take up to 1 minute before the connected controller is displayed in the utility program.



4. **Access the controller’s configuration pages in your Web browser** by marking the controller (blue marking line in the above example), and clicking on the Web Interface button.
or
by opening your Web browser (e.g. Internet Explorer) and entering the controller’s IP address in the browser’s address line.
(E.g. <172.16.5.221>; entering “http://” before the address is not necessary)
5. **Log in with the <admin> account,** by clicking on the “Enter” link — in the Web browser, in the middle of the page — and entering <admin> as user name and <admin> as password (case sensitive).

Note that the Web browser must have the Pop-ups function enabled, as the configuration web pages employs Java script navigation.
Read chapter “How To Enable Pop-ups in the browser — Internet Explorer”, page 18.

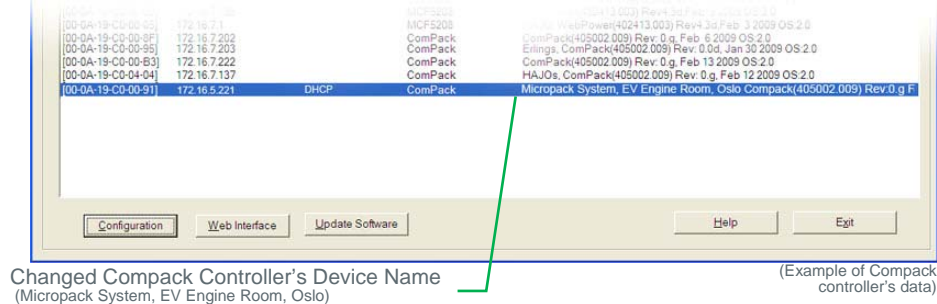
For security reasons, it is advisable to change the default passwords with your own passwords.
Read chapter “How To Change Default Log In Passwords”, page 19.

6. Change the controller's Device Name by,

- Clicking on "Network Config" button, in the Power Explorer's toolbar
- Clicking on the "TCP/IP" tab
- Then clicking in the Device Name field and entering the Device Name that describes your *Micropack* PS System, e.g. "Micropack System, EV Engine Room, Oslo"

Read chapter "How To Change the Compack Controller's Device Name", page 21.

Now the Eltek Valere Network Utility window will display the new device name.



Controller Access — Via Stand-alone PC

If a Local Area Network (LAN) is not available, you can also access the *Compack* controller directly from a stand-alone computer.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

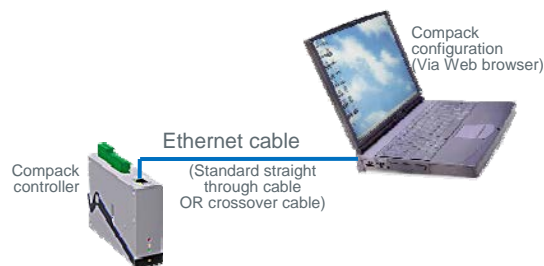


Figure 9 Controller's access from a stand-alone PC using a standard Ethernet cable (straight-through or crossover cable)

Requirements

- Computer equipped with a standard Ethernet Network Interface Card (NIC) with RJ-45 socket. Wireless NICs may not be used to access the controller.
- The NIC's necessary network components have to be correctly installed, specially the Internet Protocol (TCP/IP). Also, the DHCP function must be enabled.
- Ethernet cable to connect the controller to the LAN (straight-through or crossover cable, as the controller's port implements HP Auto MDI/MDI-X detection and correction)

Network components are software clients, services and protocols that the NIC uses to communicate with servers in the network.

Contact your IT Department, if your computer has difficulties while installing or configuring the network card. Also, read chapter “How To Check the Status of your LAN Network Card (NIC)”, page [22](#).

In Short

To get access to the *Compack* controller via a stand-alone computer, just connect the controller directly to the computer's NIC, using a standard Ethernet straight-through or crossover cable.

The controller and the computer will assign themselves a random IP address. E.g. the controller may get <0.0.0.1> and the computer <169.254.52.132>.

For the computer to be able to access the controller, both devices need to have different IP addresses, but in the same range. As the computer's NIC IP address is now e.g. <169.254.52.132>, so reconfiguring the controller's IP address from e.g. <0.0.0.1> to e.g. <169.254.52.133> will enable them to “talk” to each other.

Then, access the controller via your Web browser, and change its LAN device name, to facilitate later identification.

The “Controller Access — Via Stand-alone PC” procedure involves following steps (as described in more detail in the next chapter):

1. Start the “Eltek Valere Network Utility” program
2. Connect the computer *to the Compack* controller and check its MAC address
3. Find the NIC's IP address and subnet mask used by the computer
4. Change the controller's IP address to the same range as the computer's
5. Access the controller's configuration pages in your Web browser
6. Log in with the <admin> account,
7. Change the controller's Device Name

For acronym descriptions, refer to chapter “Glossary”, page [38](#) (rear cover page).

Read also chapter “Compack Controller's Default Networking Data”, page [10](#).

More Detailed

Carry out the following steps to access the *Compack* controller via a stand-alone computer:

1. **Start the “Eltek Valere Network Utility” program**
by opening the file “EVIPSetup.exe”, which will not display any LAN devices, as the computer has now nothing connected to the NIC.

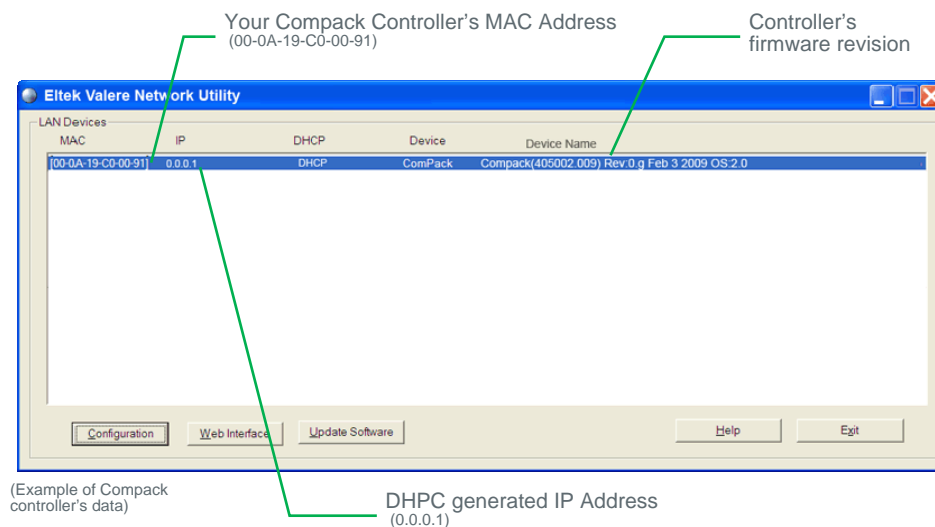
Notice that if the computer has installed wireless Ethernet Network Interface Cards, they should not be active; otherwise the Eltek Valere Network Utility may display LAN devices accessed wireless.

2. **Connect the computer to the Compack controller and check its MAC address** plugging one end of the Ethernet cable to the controller's RJ-45 socket on its top, and the other end to the computer's NIC.

The controller automatically generates an IP address, e.g. <0.0.0.1>, and the Eltek Valere Network Utility displays the controller as a connected LAN device (may take up to 1 minute to display).

Notice that the displayed IP address may differ from above, if a Static IP address has been previously enabled and stored in the controller.

Check that the displayed MAC address corresponds to the MAC address label on the controller.



3. **Find the NIC's IP address and subnet mask used by the computer by,**
 - Opening the computer's Network Connections window
 - Selecting the actual network card (NIC) and
 - Making a note of the IP address and Subnet mask displayed in the Details panel, on the left side of the window.

E.g. IP address: <169.254.52.132>, Subnet mask: <255.255.0.0>

Read chapter "How To Check the Status of your LAN Network Card (NIC)", page 22.

Notice that you can also get this information by opening a DOS window and running the command "IPCONFIG".

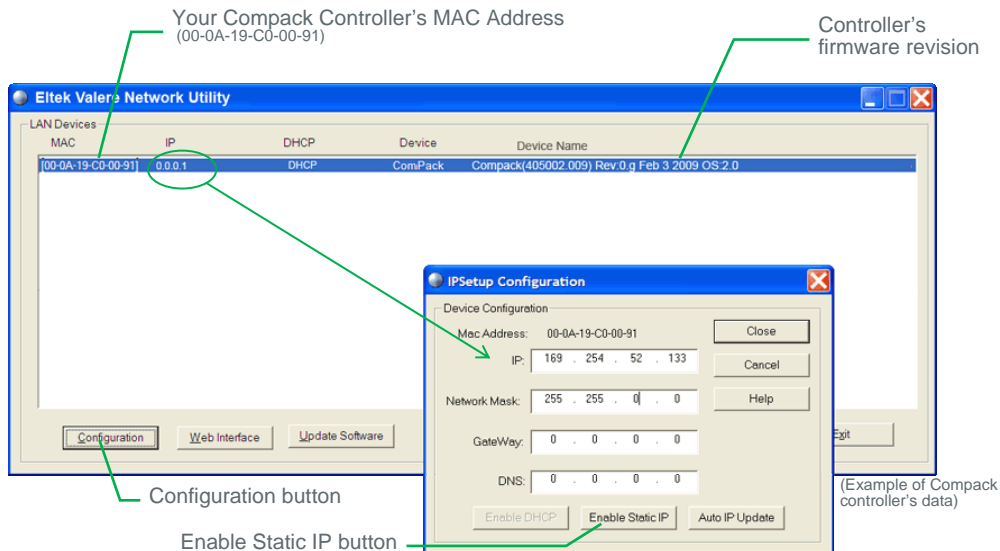
4. Change the controller's IP address to the same range as the computer's by,

- Selecting the controller in the Eltek Valere Network Utility window
- Clicking on the Configuration button, to open the “IPSetup Configuration” window
- Changing the IP address from, e.g. <0.0.0.1> to e.g. <169.254.52.133>
- Changing the Network Mask from, e.g. <0.0.0.0> to e.g. <255.255.0.0>
- and clicking on the “Enable Static IP” button

Now the controller's and the computer's IP addresses and Subnet masks are in the same range and both devices can "talk" to each other.

Computer's: <169.254.52.132> <255.255.0.0>

Controller's: <169.254.52.133> <255.255.0.0>



WARNING!

Never enter Network Mask (Subnet masks) <0.0.0.0> or <255.255.255.255> as they are not valid masks, and in the worst case may render the controller or LAN device inaccessible.

5. Access the controller's configuration pages in your Web browser

by opening your Web browser (e.g. Internet Explorer) and entering the controller's new static IP address in the browser's address line.

(E.g. <169.254.52.133>; entering "http://" before the address is not necessary)

6. Log in with the <admin> account,

by clicking on the "Enter" link — in the Web browser, in the middle of the page — and entering <admin> as user name and <admin> as password (case sensitive).

Note that the Web browser must have the Pop-ups function enabled, as the configuration web pages employs Java script navigation.

Read chapter "How To Enable Pop-ups in the browser — Internet Explorer", page 18.

For security reasons, it is advisable to change the default passwords with your own passwords.

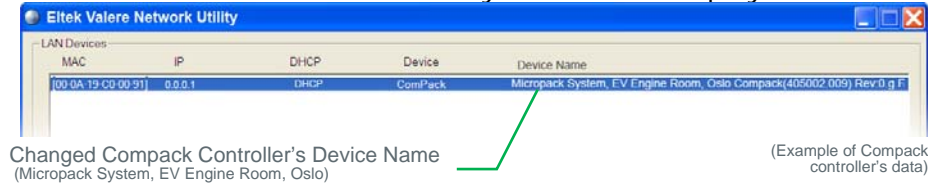
Read chapter “How To Change Default Log In Passwords”, page 19.

7. Change the controller's Device Name by,

- Clicking on "Network Config" button, in the Power Explorer's toolbar
- Clicking on the "TCP/IP" tab
- Then clicking in the Device Name field and entering the Device Name that describes your power system, e.g. "Micropack System, EV Engine Room, Oslo"

Read chapter "How To Change the Compack Controller's Device Name", page 21.

Now the Eltek Valere Network Utility window will display the new device name.



TIPS:

If later you connect your computer's NIC (while DHCP is enabled) to a LAN, the network server will automatically assign a new IP address to your NIC, so that your computer may access the LAN.

It may take up 1 or 2 minutes, but you can select the command "Repair this connection" — in the computer's Network Connections window — and Windows will right away automatically assign the new IP address.

Read chapter "How To Check the Status of your LAN Network Card (NIC)", page 22.

How Tos

This chapter describes the steps required to perform certain useful tasks, such as:

- How To Enable Pop-ups in the browser — Internet Explorer
- How To Change Default Log In Passwords — Compack GUI
- How To Change the Compack Controller's Device Name
- How To Check the Status of your LAN Network Card (NIC)

How To Enable Pop-ups in the browser — Internet Explorer

You must allow the Web browser to show pop-ups from the *Compack* controller's configuration web pages, as the pages' navigation buttons, etc. employ Java script-based navigation.

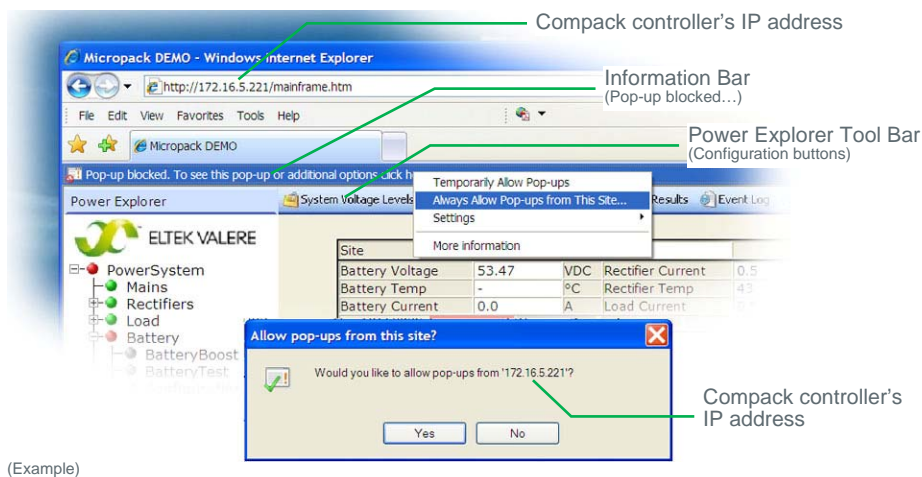
Internet Explorer and other Web browsers usually have the Pop-Up Blocker feature enabled, thus stopping annoying pop-up ads and pop-up windows while "surfing" the Internet.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

This chapter explains how to configure the Pop-up Blocker to allow pop-ups from the *Compack* controller's configuration web pages (e.g. IP address <172.16.5.221>), using Internet Explorer.

Carry out the following steps, if the browser's Information bar displays that the Pop-up Blocker has blocked the page, after clicking on one the buttons on the Power Explorer tool bar:

1. Click on the **Information bar**
2. Select command "**Always Allow Pop-ups from This Site**", from the drop-down menu
3. Click "**Yes**", in the "Allow pop-ups from this site?" dialog box



How To Change Default Log In Passwords — Compack GUI

To view the *Compack* controller's configuration pages (GUI) in your Web browser, you have to log in using one of the following default, factory set accounts:

User Name	Password	Note
status	status	Read only access rights
control	control	Service access rights
admin	admin	Administration access rights

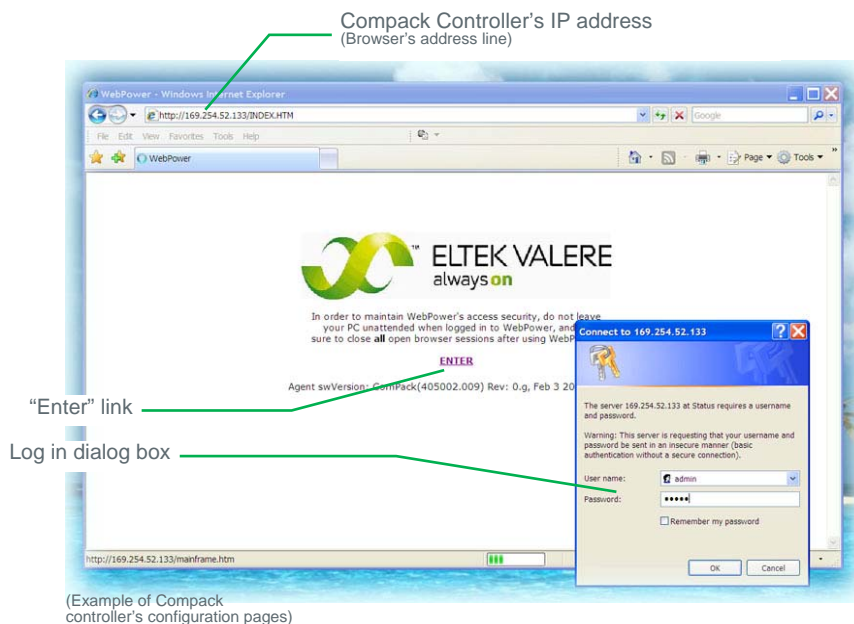
(Case sensitive passwords)

For security reasons, it is advisable to log in with the "admin" account (case sensitive) and change the default passwords with the passwords of your choice.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

Carry out the following steps to change the passwords in the *Compack* controller's configuration pages in your Web browser:

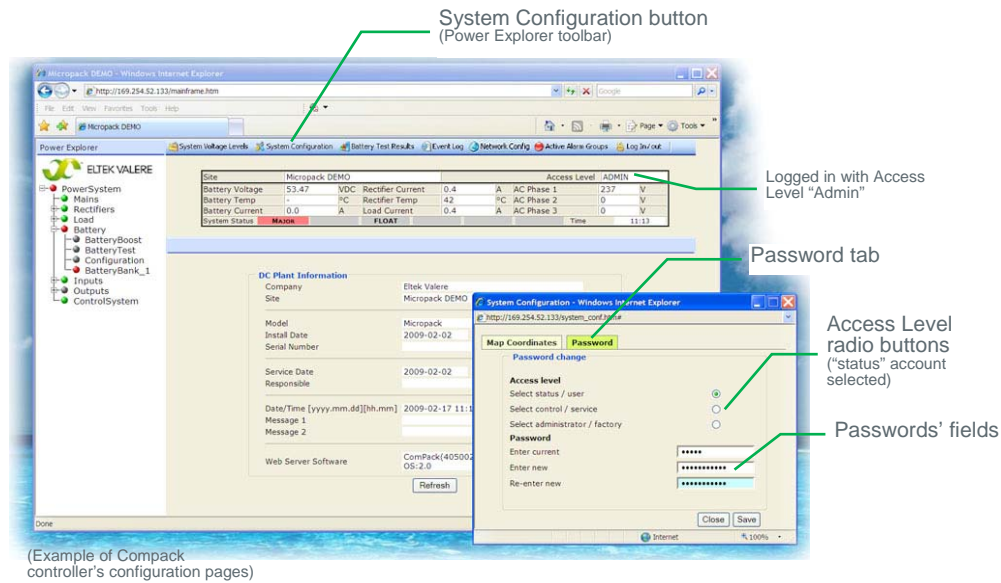
- 1. Access the controller's configuration pages in your Web browser**
by opening your Web browser (e.g. Internet Explorer) and entering the controller's IP address in the browser's address line.
(E.g. <169.254.52.133>; entering "http://" before the address is not necessary)
- 2. Log in with the <admin> account,**
by clicking on the "Enter" link — in the Web browser, in the middle of the page — and entering <admin> as user name and <admin> as password (case sensitive).



Note that the Web browser must have the Pop-ups function enabled, as the configuration web pages employs Java script navigation.
Read chapter "How To Enable Pop-ups in the browser — Internet Explorer", page 18.

3. Change the passwords by,

- Clicking on the "System Configuration" button, on the Power Explorer toolbar
- Clicking on the "Password" tab, in the dialog box
- Selecting the Access Level for the account's password you want to change; e.g. the "status" account
- Clicking in the Password fields, and typing the current password (case sensitive) and twice the password you want to change to
- Then clicking on the "Save" button, to activate the new password



How To Change the Compack Controller's Device Name

In order to facilitate identification of the *Compack*-based power system when connected a LAN, it is advisable to log in with the "admin" account and give the *Compack* controller a Device name of your choice.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

Carry out the following steps to give a Device name to the controller, using the *Compack* controller's configuration pages in your Web browser:

1. Access the controller's configuration pages in your Web browser

by opening your Web browser (e.g. Internet Explorer) and entering the controller's IP address in the browser's address line.
(E.g. <169.254.52.133>; entering "http://" before the address is not necessary)

2. Log in with the <admin> account,

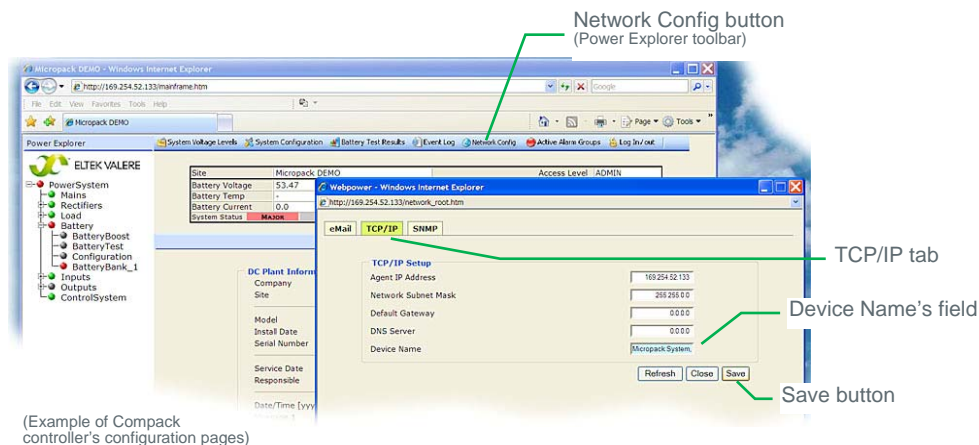
by clicking on the "Enter" link — in the Web browser, in the middle of the page — and entering <admin> as user name and <admin> as password (case sensitive) (unless you have previously changed it).

Note that the Web browser must have the Pop-ups function enabled, as the configuration web pages employs Java script navigation.

Read chapter "How To Enable Pop-ups in the browser — Internet Explorer", page 18.

3. Change the controller's Device Name by,

- Clicking on "Network Config" button, in the Power Explorer's toolbar
- Clicking on the "TCP/IP" tab
- Clicking in the Device Name field and entering the Device Name that describes your power system, e.g. "Micropack System, EV Engine Room, Oslo"
- Then clicking on the "Save" button, to active the controller's new device name



Now the Eltek Valere Network Utility window will display the new device name.

How To Check the Status of your LAN Network Card (NIC)

This chapter describes how to check your NIC's IP address, when the computer is running the MS Windows operating system.

You can always check the IP address, subnet mask, status, etc. of your personal computer's network card (NIC), by opening the "Network Connections" window and looking at the Detail pane on the left side of the window.

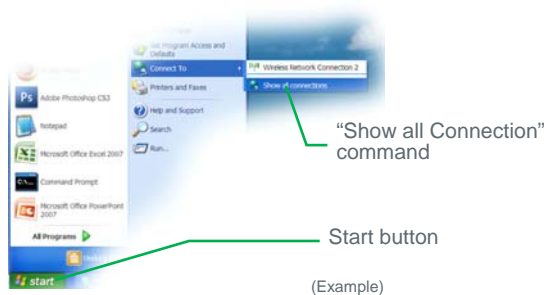
Notice that you can also get this information by opening a DOS window and running the command "IPCONFIG".

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

Carry out the following steps:

1. Open the "Network Connections" window by,

- Clicking on the "Start" button, and
- Selecting the options: "Connect To" and "Show all Connections"



OR

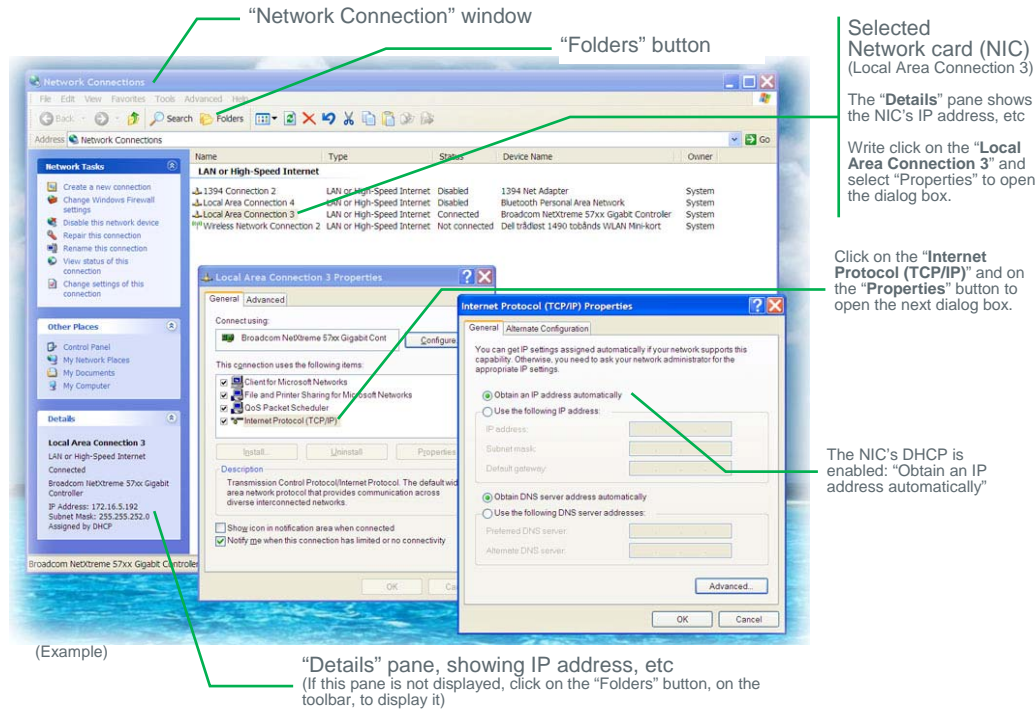
If this command is not displayed in the computer's "Start" menu,

- Clicking on the "Start" button, and
 - Selecting the "Control Panel"
 - Clicking on the "Network Connections" icon
- that opens the computer's Network Connections window

2. Find the NIC's IP address and subnet mask used by the computer by,—
— Selecting the actual network card (NIC),
e.g. "Local Area Connection 3"

— Making a note of the IP address and Subnet mask displayed in the Details panel, on the left side of the window.

E.g. IP address: <172.16.5.192>, Subnet mask: <255.255.252.0>



4. Configuring & Monitoring the Power System

This chapter describes the available methods to configure and monitor the *Compack*-based DC power supply system from a computer.

For more detailed description of configuration options and other advanced networking services implemented by the controller, refer to the *WebPower Online Help* file that you can download with the controller's firmware.

Before configuring and monitoring the power system, the computer must be able to access the *Compack* controller, which is described in chapter "Networking the Compack Controller", on page 10.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

You can configure and monitor the *Compack*-based DC power supply system from a computer — connected to a LAN or directly connected to the controller — using the following methods:

- **Via a standard Web browser.**
The configuration Web pages are stored in the controller, so you do not need to install any programs in the computer.
- **Via PowerSuite application.**
The powerful *PowerSuite* application must be installed in the computer.
- **Via Network Management System (NMS)**
The NMS hardware and software must be installed in the network.

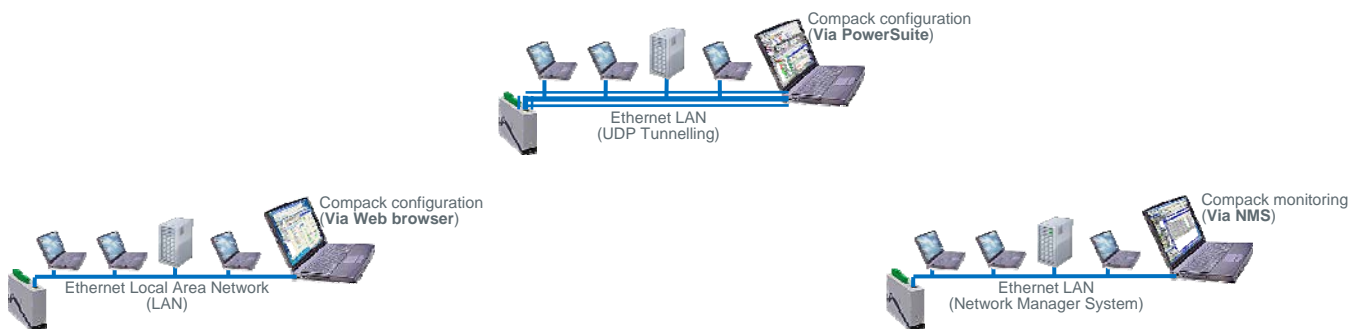


Figure 10 Power system configuration via Web browser, PowerSuite and NMS.

Configuration — via Web Browser

You can configure and monitor the *Compact*-based DC power supply system from a computer — connected to a LAN or directly connected to the controller — using a standard Web browser to access the configuration pages stored in the *Compact* controller.

You do not need to install any programs in the computer.

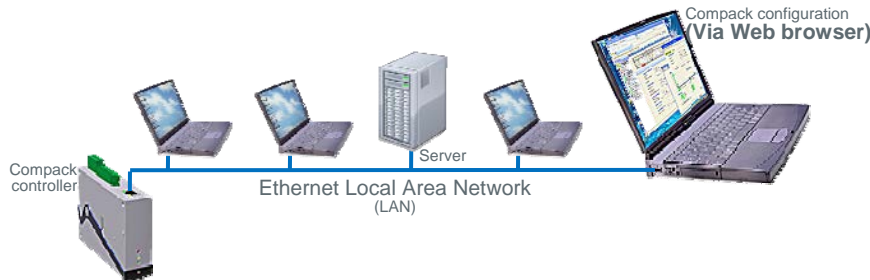


Figure 11 Power system configuration via Web browser.

For information about how to access the configuration pages stored in the *Compact* controller, read chapter “How To Change Default Log In Passwords — Compact GUI”, page 19.

For more detailed description of configuration options and other advanced networking services implemented by the controller, browse and search through the *WebPower Online Help* file that you can download with the controller’s firmware.

Configuration — via PowerSuite Application

You can configure and monitor the *Compact*-based DC power supply system from a computer — connected to a LAN or directly connected to the controller — using the powerful *PowerSuite* application.

You need to install the *PowerSuite* application in the computer.

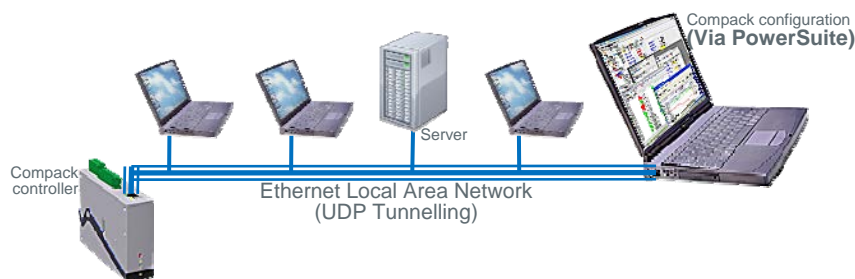


Figure 12 Power system configuration via PowerSuite application.

For acronym descriptions, refer to chapter “Glossary”, page 38 (rear cover page).

The *PowerSuite* application is originally developed for USB serial connection between the computer and the controller, using the pComm protocol.

When the controller is not equipped with an USB serial port — as is the case with the *Compact* controller — you can still use the *PowerSuite* application via an Ethernet LAN, using the UDP tunnelling protocol. *PowerSuite*’s pComm protocol is then embedded in the LAN’s IP protocol.

In Short

To use *PowerSuite* to configure the power system via an Ethernet LAN connection, just connect the controller to the LAN. Using the "*Eltek Valere Network Utility*" program, identify the controller and make a note of its IP address. Start *PowerSuite* in your LAN connected computer, click on the "Connect" button and in the Site Manager dialog box create a new Network site with the controller's IP address.

The "Configuration — via PowerSuite Application" procedure involves following steps (as described in more detail in the next chapter):

1. Start the "Eltek Valere Network Utility" program
2. Connect the *Compack* controller to the LAN
3. Identify the controller in the "*Eltek Valere Network Utility*" program
4. Start the *PowerSuite* application in your computer (connected to the LAN)
5. In *PowerSuite*'s Site Manager, create a new Network site for the controller

For more detailed description of configuration options and other advanced networking services implemented by the controller, click any time on the *PowerSuite*'s Help buttons to browse and search through *PowerSuite Online Help*.

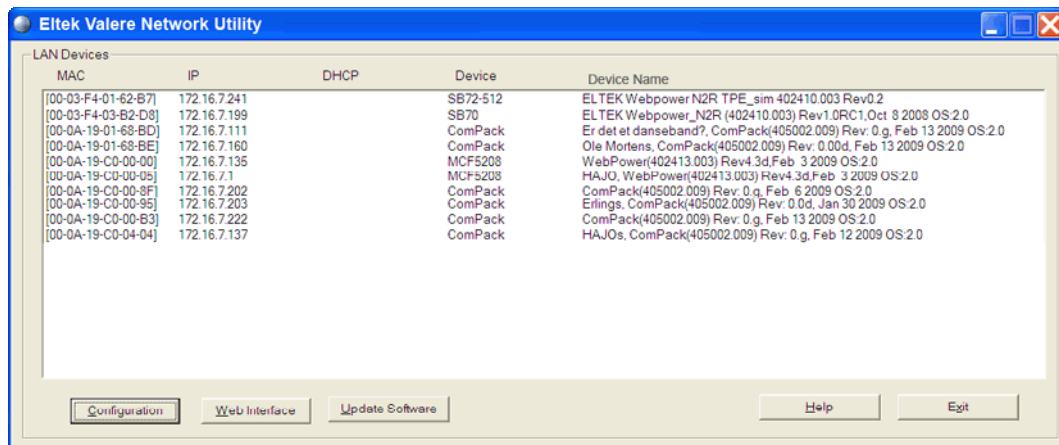
Also, refer to the *WebPower Online Help* file that you can download with the controller's firmware.

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

More Detailed

Carry out the following steps to use *PowerSuite* via an Ethernet LAN connection:

1. **Start the "Eltek Valere Network Utility" program**
by opening the file "EVIPSetup.exe", which will display already connected LAN devices. The *Compack* controller will be displayed after connection to the LAN.



(Example of connected LAN devices)

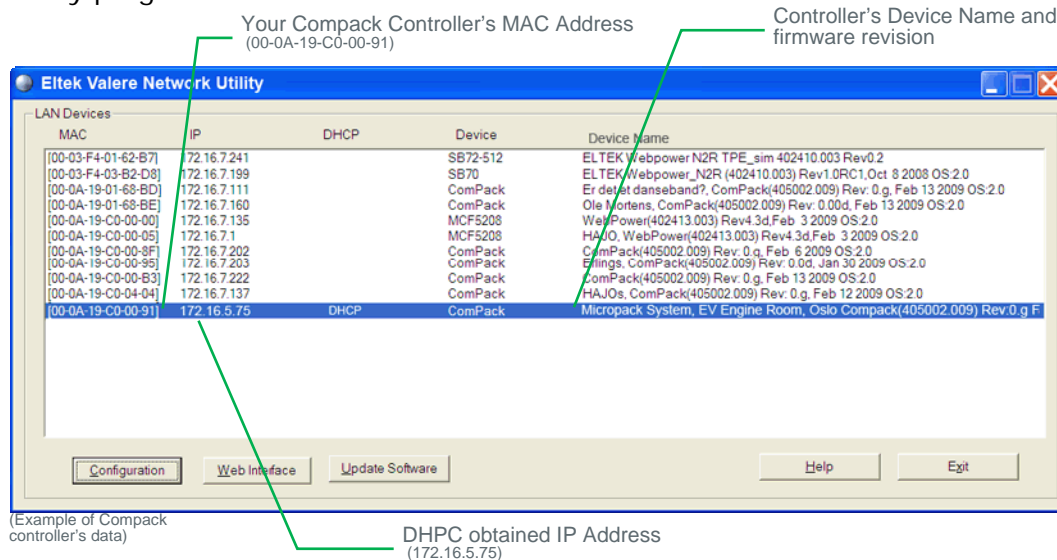
2. **Connect the *Compack* controller to the LAN**
plugging one end of a standard Ethernet cable (straight through Ethernet cable) to the controller's RJ-45 socket on its top, and the other end to one of the LAN's available RJ-45 sockets. See "Figure 8", page 10.

The controller automatically obtains an IP address from the LAN server, as the controller's DHCP protocol is enabled from factory.

3. **Identify the controller in the “Eltek Valere Network Utility” program** by looking for your *Compack* controller’s MAC address on the list of connected LAN devices.

All controllers are shipped with a label specifying its unique MAC address. Check that the displayed MAC address corresponds to the MAC address label on the controller

Notice that it can take up to 1 minute before the connected controller is displayed in the utility program.



Make a note of the controller's IP address and Device Name.

4. **Start the PowerSuite application in your computer by,**
(The computer has to be connected to the same LAN as the controller.)

— Selecting from the Start menu, in MS Windows:
“Start > All Programs > Eltek Valere > PowerSuite”

OR

— Clicking on the *PowerSuite* icon on your computer’s desktop



5. Create and save a new Network Site for the controller by,

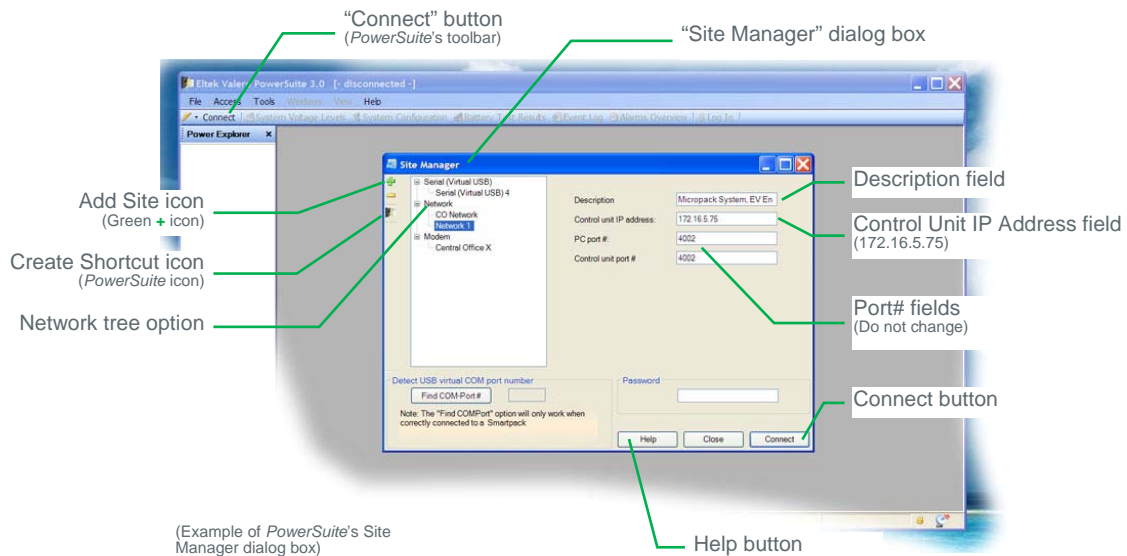
Carrying out the following:

- Click on the "Connect" button, on the *PowerSuite* toolbar
- Click on the "Network" tree option on the Site Manager dialog box
- Click on the Add Site icon (green +)
- Edit the "Description" field.

E.g. enter the controller's Device Name "Micropack System, EV Engine Room, Oslo"

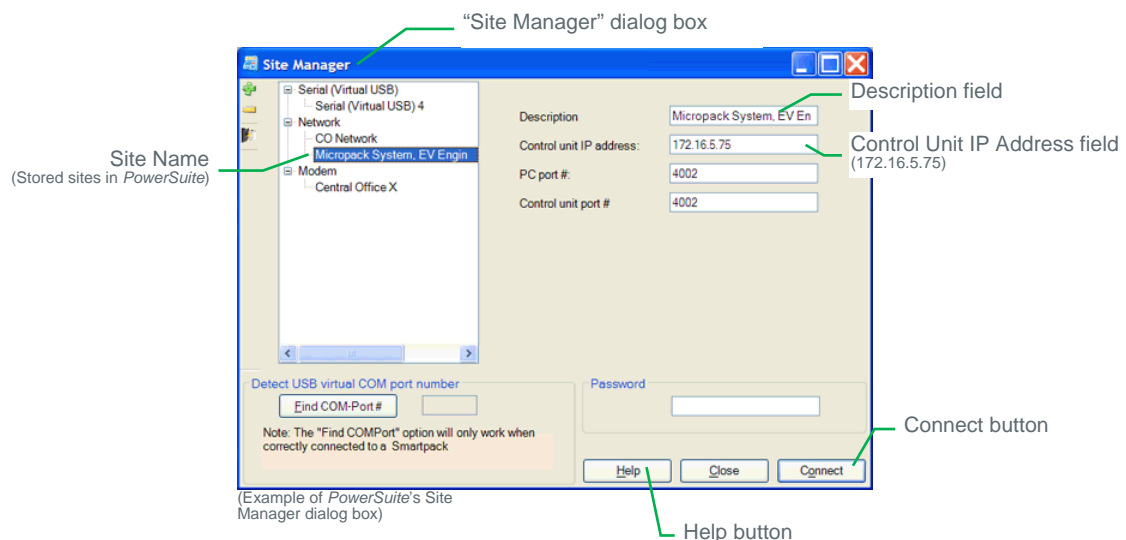
— Edit the "Control Unit IP Address" field, and enter the controller's IP address:
e.g. "172.16.5.75". Do not change the Port# fields!

— Click on the "Connect" button, on the Site Manager dialog box



PowerSuite will then connect to the *Compact* controller on the LAN with IP address "172.16.5.75".

You can any time click on the dialog box's Help button for additional description.



The set of communication parameters will be saved with the name you entered in the "Description" field, e.g.: "Micropack System, EV Engine Room, Oslo".

Next time you want to connect with this site (*Compact* controller), click on the "Connect" button on the toolbar, select the Site Name in the Site Manager tree and click on the dialog box's "Connect" button.

Monitoring — via Network Management System

You can remote monitor the *Compack*-based DC power supply system from a computer connected to an Ethernet LAN which has installed a Network Management System (NMS).

The NMS hardware and software must be previously installed in the LAN network.

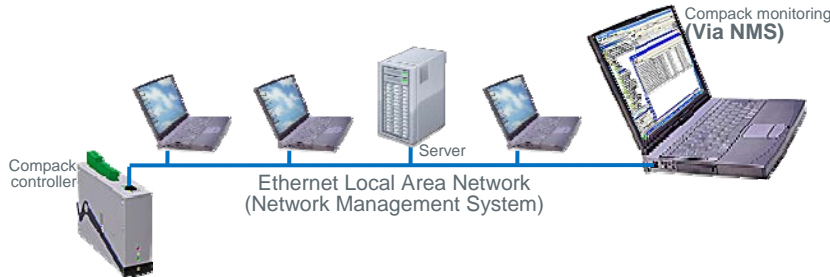


Figure 13 Power system remote monitoring via NMS.

For acronym descriptions, refer to chapter “Glossary”, page 38 (rear cover page).

Requirements

- Computer correctly configured, connected to the LAN and with access to the NMS
- Standard Ethernet cable (straight through cable),
to connect the controller to the LAN
- Eltek Valere’s specific SNMP MIB files (Management Information Base)

Contact your IT Department, if your computer has difficulties while installing the MIB files or accessing the SNMP agent (Simple Network Management Protocol).

In Short

The *Compack* controller implements an SNMP agent which interfaces with the Network Management System (NMS), enabling remote monitoring via the standard SNMP messaging commands SET, GET and TRAP.

The SNMP agent is compatible with all major NMS on Ethernet, such as “HP Open View”, “Sun NetManager”, etc.

The SNMP agent responds to SNMP’s GET and SET commands, and forwards TRAPs to designated recipients when critical conditions occur to the DC power system, as configured in the *Compack* controller.

The GET commands provide the NMS with remote monitoring status — e.g. Battery status, etc. — of the power system.

The SET commands enable the NMS to remote control the power system, e.g. changing the output voltage.

The TRAP commands are unsolicited alarm messages that the power system sends to the NMS, when critical situations occur.

You can regard SNMP agents (network devices) that send TRAPs as “clients”, and network devices that receive TRAPs and poll devices (issue GETs and SETs) as “servers”.

The “Monitoring — via Network Management System” procedure involves following steps (as described in more detail in the next chapter):

Compack controller SNMP configuration:

(Refer to chapter “More Detailed”, on page 30)

1. TRAP receiver IP addresses
(Network Managers that receive alarm messages)
2. TRAP Community Strings
3. TRAP Repeat Rates
4. Read and Write Community Strings

NMS configuration:

(Refer to the NMS manuals for accurate instructions)

1. Compile the Eltek Valere’s device specific MIB files into the NMS database
(Read chapter “About Eltek Valere’s SNMP MIB Files”, page 33)
2. Add the *Compack* object to the Management Map
(See an example of the *Compack* controller object added to the Management Map, in chapter “Example — NMS Configuration”, page 34.)
3. “Ping” the *Compack* controller to ensure connectivity
4. Define and configure the TRAP event handling, as required

For acronym descriptions, refer to chapter “Glossary”, page 38 (rear cover page).

More Detailed — Controller SNMP Configuration

Carry out the following steps to configure the *Compack* controller’s SNMP agent:

1. Access the controller’s configuration pages in your Web browser

by opening your Web browser (e.g. Internet Explorer) and entering the controller’s IP address in the browser’s address line.
(E.g. <172.16.5.75>; entering “http://” before the address is not necessary)

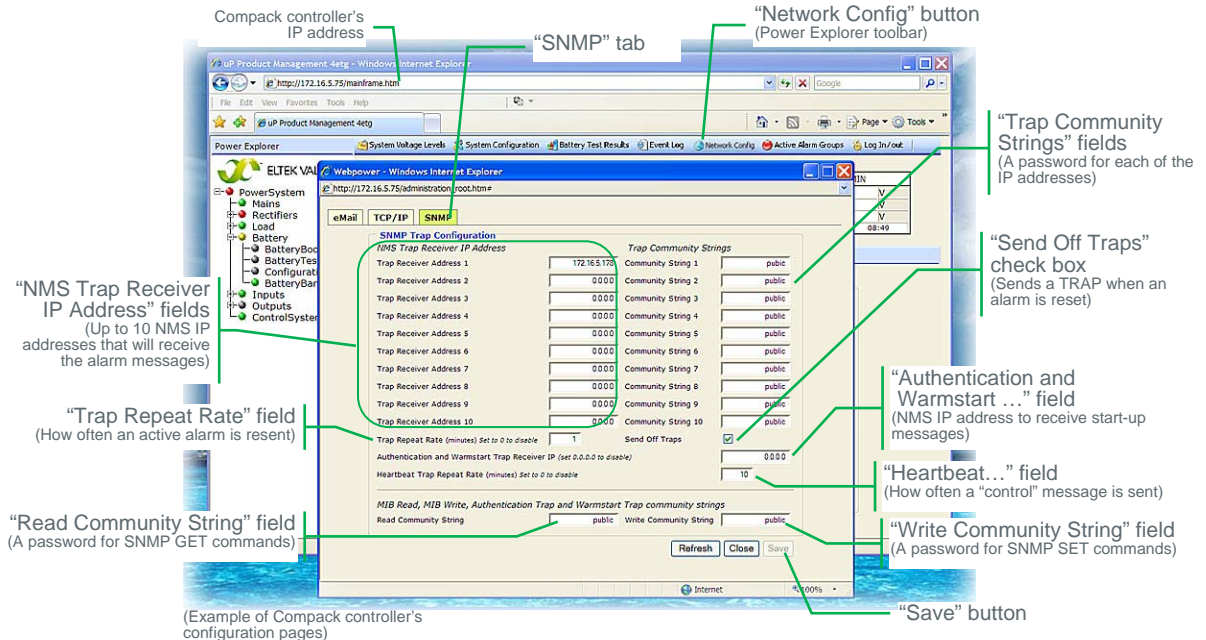
2. Log in with the <admin> account,

by clicking on the “Enter” link — in the Web browser, in the middle of the page — and entering <admin> as user name and <admin> as password. (case sensitive)
Refer also to the log in procedure in chapter “How To Change Default Log In Passwords — Compack GUI”, page 19.

Note that the Web browser must have the Pop-ups function enabled, as the configuration web pages employs Java script navigation.
Read chapter “How To Enable Pop-ups in the browser — Internet Explorer”, page 18.

3. Configure the Compack controller's SNMP agent by,

- Clicking on the "Network Config" button, on the Power Explorer toolbar
- Clicking on the "SNMP" tab, in the dialog box
- Entering the SNMP agent's data in appropriate fields, as described below
- Then clicking on the "Save" button, to activate the SNMP data



"NMS Trap Receiver IP Address" fields:

Enter the NMS IP addresses of up to 10 TRAP hosts.

When critical situations occur in the power system, the *Compack* controller's SNMP agent can unsolicited send alarm messages to up to 10 different NMS IP addresses (TRAP hosts or managers).

"Trap Community Strings" fields:


Enter a password for each of the 10 TRAP receivers or hosts. Default password is "public" (case sensitive). The password entered here for each TRAP receiver, is also to be entered in the NMS TRAP Receiver List.

"Trap Repeat Rate" field:

Enter how often (number of minutes 0-10) the TRAP message will be resent to the receiver, while the event or alarm remains in active condition. Enter "0" not to resend.

"Send Off Traps" check box:

Check the box to enable sending a TRAP message when an event or alarm is reset to normal condition. Uncheck the box to disable this function.

 Community Strings or passwords can be max 19 characters long. Valid characters are A-Z, a-z, 0-9 and special characters ~@#%^&_-=+:,. Do not use any other characters.

“Authentication and Warmstart Trap Receiver IP” field:

Enter NMS IP address (TRAP host or manager) that will receive start-up TRAP messages.

“Heartbeat Trap Repeat Rate” field:

Enter how often (number of minutes 0-10) the “heartbeat”, control TRAP message, will be resent to the receiver. Enter “0” to disable sending “heartbeat” messages.

“Read Community String” field:

Enter a password³ for the SNMP agent’s Read access level. Default password is “public” (case sensitive). Network devices issuing the SNMP GET command must be configured with this password.

“Write Community String” field:

Enter a password for the SNMP agent’s Write access level. Default password is “public” (case sensitive). Network devices issuing the SNMP SET command must be configured with this password.

About Community Strings

You can regard SNMP agents (network devices) that send TRAPs as “clients”, and network devices that receive TRAPs and poll devices (issue GETs and SETs) as “servers”.

The Community String is like a password that the “server” device issues to the “client” device during a remote query (e.g. a GET or SET command). Both the “server” and “client” devices have to use the same password.

Most network devices implement different levels of SNMP access (e.g. Read, Write, etc.) each with its password or community string.

³ Community Strings or passwords can be max 19 characters long. Valid characters are A-Z, a-z, 0-9 and special characters ~@#%^&_-=:,. Do not use any other characters.

About Eltek Valere's SNMP MIB Files

The *Eltek Valere's* device specific MIB files^[4] (Management Information Base) contain device description data, which is used by other SNMP requester devices in the Network Management System (NMS).

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

The MIB files are in the plain-text, DOS End-of-Line format, and conform to the ASN1 coding syntax.

Eltek Valere's SNMP compliant devices are described in one or several MIB files, which are required for configuration of the Network Management System (NMS).

There are 3 types of *Eltek Valere* SNMP MIB files:

- The "**First-Time Installation Type**" MIB files.
Describe a complete MIB tree structure (root and a branch) for *Eltek Valere* SNMP devices.
Use this type of MIB file if your NMS MIB tree does NOT already contain an *Eltek Valere* SNMP MIB tree structure.
- The "**Root Type**" MIB files.
Describe the *Eltek Valere* MIB tree base or root (no branches for SNMP devices).
Use this type of MIB file if you want to use several *Eltek Valere* Branch MIB files simultaneously as branches in the NMS MIB tree.
- The "**Branch Type**" MIB files.
Describe the *Eltek Valere* MIB tree branches for SNMP devices (no root).
Use this type of MIB file if you already have the *Eltek Valere* MIB tree root compiled in the NMS MIB tree.
You can compile several *Eltek Valere* Branch MIB files in the NMS MIB tree, thus describing different *Eltek Valere's* SNMP compliant devices (equipment).

Following table is an overview of some of the *Eltek Valere* SNMP MIB files, their MIB file type and the equipment they describe:

MIB File Type	MIB File Name	Described Eltek Valere Equipment
Root	Eltek_Root.MIB	Top file for all Eltek Valere Branch SNMP MIB files in the NMS
Branch	EltekDistributedPowerPlantV2_branch9.MIB	Smartpack controller with embedded WebPower with firmware version 4.0
Branch	EltekDistributedPowerPlantV3_branch9.MIB	Smartpack controller with embedded WebPower with firmware version 4.1 and 4.2
Branch	EltekDistributedPowerPlantV4_branch9.MIB	Smartpack controller with embedded WebPower with firmware version 4.3, and Compack controller with firmware version 1.0
First Installation	EltekDistributedPowerPlantV3.MIB	Complete Root and Branch file for Smartpack controller with embedded WebPower with firmware version 4.1 and 4.2
First Installation	EltekDistributedPowerPlantV4.MIB	Complete Root and Branch file for Smartpack controller with embedded WebPower with firmware version 4.3, and Compack controller with firmware version 1.0

^[4] You can visit www.eltekvalere.com to download *Eltek Valere's* device specific MIB files, or contact Eltek Valere's Service Dep.

Example — NMS Configuration

After completing the controller's SNMP configuration — see chapter "More Detailed — Controller SNMP Configuration", page 30 — you have to configure your NMS, to complete the "Monitoring — via Network Management System" procedure.

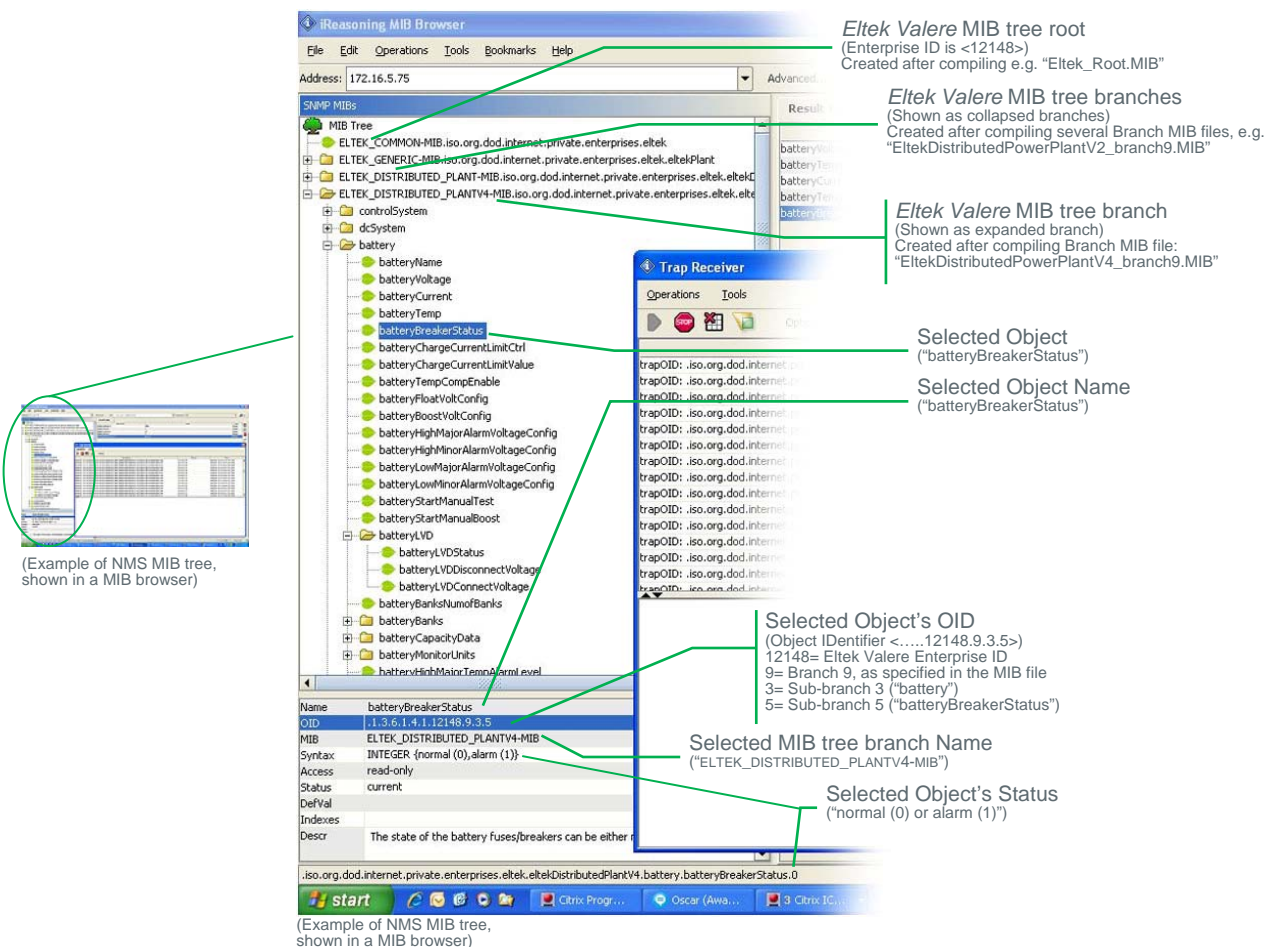
Refer to your NMS manuals for accurate instructions about how to configure the NMS (e.g. "HP Open View", "Sun NetManager", etc.)

For acronym descriptions, refer to chapter "Glossary", page 38 (rear cover page).

Follow these general steps to configure the Network Management System:

1. Compile the *Eltek Valere's* device specific MIB files into the NMS database.
Any suitable SNMP based NMS with MIB compiler may be used.
(Read also chapter "About Eltek Valere's SNMP MIB Files", page 33)
2. Add the *Compack* object to the Management Map
(The figure below is an example of the *Compack* controller object added to the Management Map.)
3. "Ping" the *Compack* controller to ensure connectivity
4. Define and configure the TRAP event handling, as required

Eltek Valere's unique Enterprise ID is <12148>



The screenshot shows the iReasoning MIB Browser interface. The MIB tree on the left lists various Eltek Valere MIB files, including ELTEK_COMMON-MIB, ELTEK_GENERIC-MIB, ELTEK_DISTRIBUTED_PLANT-MIB, and ELTEK_DISTRIBUTED_PLANTV4-MIB. The right pane shows the Trap Receiver configuration for the selected object, batteryBreakerStatus. The configuration includes the trapOID, trapName, and trapType. The selected object's OID is 1.3.6.1.4.1.12148.9.3.5, which is derived from the Enterprise ID 12148, Branch 9, Sub-branch 3, and Sub-branch 5. The selected MIB tree branch name is ELTEK_DISTRIBUTED_PLANTV4-MIB. The selected object's status is "normal (0) or alarm (1)".

Eltek Valere MIB tree root
(Enterprise ID is <12148>)
Created after compiling e.g. "Eltek_Root.MIB"

Eltek Valere MIB tree branches
(Shown as collapsed branches)
Created after compiling several Branch MIB files, e.g. "EltekDistributedPowerPlantV2_branch9.MIB"

Eltek Valere MIB tree branch
(Shown as expanded branch)
Created after compiling Branch MIB file: "EltekDistributedPowerPlantV4_branch9.MIB"

Selected Object
("batteryBreakerStatus")

Selected Object Name
("batteryBreakerStatus")

Selected Object's OID
(Object Identifier <....,12148,9,3,5>)
12148= Eltek Valere Enterprise ID
9= Branch 9, as specified in the MIB file
3= Sub-branch 3 ("battery")
5= Sub-branch 5 ("batteryBreakerStatus")

Selected MIB tree branch Name
("ELTEK_DISTRIBUTED_PLANTV4-MIB")

Selected Object's Status
("normal (0) or alarm (1)")

(Example of NMS MIB tree, shown in a MIB browser)

5. Appendix

About Control Units

The *Eltek Valere* control system consists of control units or hardware devices connected to the system's CAN bus. Several types of control units may be connected, such as *Compack* controller, *Smartpack* controller and other related CAN nodes.

CAN bus

The *Compack*- and *Smartpack*-based DC power systems utilize the CAN⁵ bus — a digital interface architecture that supports a dedicated communication channel between the control units and each of the rectifiers.

CAN bus Addressing

All rectifiers and the *Compack* and *Smartpack* controllers (control units) connected to the *Eltek Valere*'s CAN bus must have a unique address or ID number.

Software Assignment — Rectifiers

The control system's main controller assigns automatically the rectifiers' addresses (**software assignment**).

When the rectifiers are hot-plugged in the system the first time, the system's main controller dynamically assigns the rectifiers with the next available ID number (software-assignment), and automatically increases the number of communicating rectifiers on the CAN bus. Also, the controller registers the rectifiers' ID numbers, or CAN bus address (01, 02...), together with their serial numbers.

When a previously installed rectifier is again hot-plugged in the system, it retains its previous ID and serial number, unless reassigned during a Reset Rectifier command.

WARNING: To replace installed rectifiers with new ones, remove the installed rectifiers and wait for the controller to notify communication error with the extracted rectifiers. Push the new rectifiers firmly inwards — one module at a time, allowing a 2s delay — to plug them in the system. Start with the position with lowest ID number. Lock their handles.

When a new main system controller is inserted in an existing system, the controller will recalculate the number of connected rectifiers, reassigning them with the same ID numbers as they already have in memory.

Hardware Assignment — Control Units

All *Compack* controllers are factory configured with CAN bus ID number <1> (not changeable).

Each *Smartpack* controller and CAN node must be configured with a unique CAN bus ID number, using DIP switches on the side of the unit (**hardware-assignment**).

⁵ Control Area Network. Serial protocol utilised for communication between *Eltek Valere*'s rectifiers and controllers

6. Glossary

Term	Description	1v0_2009-03-31
Browser	Short for Web browser, a software application used to locate and display Web pages. The two most popular browsers are Microsoft Internet Explorer and Firefox. Both of these are graphical browsers, meaning that they can display graphics as well as text. In addition, most modern browsers can present multimedia information, including sound and video, though they require plug-ins for some formats.	
CAN Bus	Controller Area Network (CAN or CAN bus) is a serial protocol utilized for communication between <i>Eltek Valere's</i> rectifiers, controllers and other control units. The protocol is used in DC power systems that use the <i>Smartpack</i> controller, the <i>Compack</i> controller and in Aeon systems. The CAN bus standard was originally designed to allow microcontrollers and devices to communicate with each other without a host computer. The CAN specification defines the Data Link Layer, while ISO 11898 defines the Physical Layer. The CAN bus is a 2-wire interface running over either a Shielded Twisted Pair (STP), Un-shielded Twisted Pair (UTP), or Ribbon cable. Each node uses a Male 9-pin D connector.	
Crossover cable	An Ethernet crossover cable is a type of Ethernet cable used to connect computing devices together directly where they would normally be connected via a network switch, hub or router, such as directly connecting two personal computers via their network adapters. The 10BASE-T and 100BASE-TX Ethernet standards use one wire pair for transmission in each direction. The Tx+ line from each device connects to the tip conductor, and the Tx- line is connected to the ring. This requires that the transmit pair of each device be connected to the receive pair of the device on the other end. When a terminal device is connected to a switch or hub, this crossover is done internally in the switch or hub. A standard straight through cable is used for this purpose where each pin of the connector on one end is connected to the corresponding pin on the other connector.	
DHCP	Dynamic Host Configuration Protocol (DHCP) is a network application protocol used by devices (DHCP clients) to obtain configuration information for operation in an Internet Protocol network. This protocol reduces system administration workload, allowing devices to be added to the network with little or no manual intervention.	
Eltek Valere Network Utility Program	Simple Windows-based utility program (EVIPSetup.exe) that needs no software installation. It is used to display the <i>Smartpack</i> and <i>Compack</i> controller's network parameters, when connected to an Ethernet LAN. Also, it enables changing the controller's IP address, configuring the controller via a standard Web browser and upgrading the controller's firmware.	
Ethernet	Local Area Network technology. Ethernet provides data transfer using a baseband (single-channel) communication technique. Ethernet uses carrier sense multiple access collision detection (CSMA/CD) that prevents network failures when two devices attempt to access the network at the same time. A 10/100 Ethernet port supports 10BASE-T and 100BASE-TX.	
EVIPSetup.exe	See Eltek Valere Network Utility Program	
FTP Server	Trivial File Transfer Protocol Server (TFTP). A host to provide services according to TFTP; a TCP/IP standard protocol for file transfer with minimal capability and overhead depending on UDP for its datagram delivery service.	
GUI	Pronounced GOO-ee. Acronym for graphical user interface. A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use. Well-designed graphical user interfaces can free the user from learning complex command languages. On the other hand, many users find that they work more effectively with a command-driven interface, especially if they already know the command language.	
HUB	A common connection point for devices in a network. Hubs are commonly used to connect segments of a LAN. A hub contains multiple ports. When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets.	
I/O	Short for Input /Output. The term I/O is used to describe any program, operation or device that transfers data to or from a computer and to or from a peripheral device. Every transfer is an output from one device and an input into another.	
IP Address	The Internet Protocol Address IP version 4 addresses (IPv4) uses 32-bit (4-byte) addresses, which limits the address space to 4,294,967,296 possible unique addresses. However, IPv4 reserves some addresses for special purposes such as private networks (~18 million addresses) or multicast addresses (~270 million addresses). IPv4 addresses are usually represented in dot-decimal notation (four numbers, each ranging from 0 to 255, separated by dots, e.g. 208.77.188.166). Each part represents 8 bits of the address, and is therefore called an octet.	
LAN	Local Area Network A local area network is a computer network covering a small physical area, like a home, office, or small group of buildings, such as a school, or an airport. Current LANs are most likely to be based on Ethernet technology.	
LVBD	Low Voltage Battery Disconnect contactor. System internal latching contactor that disconnects the battery bank from the load, when a certain voltage limit is reached or other battery critical events occur.	
MAC Address	Media Access Control Address. Every Ethernet network card has a unique 48-bit serial number called a MAC address, which is stored in ROM carried on the card. Every computer on an Ethernet network must have a card with a unique MAC address. Normally it is safe to assume that no two network cards will share the same address, because card vendors purchase blocks of addresses from the Institute of Electrical and Electronics Engineers (IEEE) and assign a unique address to each card at the time of manufacture.	
MIB	Management Information Base, a database of objects that can be monitored by a network management system. SNMP uses standardized MIB formats that allows any SNMP tools to monitor any device defined by a MIB	
Mini Hub	A common connection point for devices in a network. Hubs are commonly used to connect segments of a LAN. A hub contains multiple ports. When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets	

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NIC	Network Interface Controller. A network card, network adapter, network interface controller, network interface card, or LAN adapter is a computer hardware component designed to allow computers to communicate over a computer network. It is both an OSI layer 1 (physical layer) and layer 2 (data link layer) device, as it provides physical access to a networking medium and provides a low-level addressing system through the use of MAC addresses. It allows users to connect to each other either by using cables or wirelessly.	
NMS	Network Management Station -An SNMP Manager application which interfaces with the SNMP Agent and provides communication capabilities through standard SNMP messaging commands (SET, GET). The NMS also serves to collect SNMP TRAP events. A Network Management System (NMS) is a combination of hardware and software used to monitor and administer a network.	
pComm	RS232 serial protocol used by <i>Eltek Valere's</i> controllers for communication with computers, modems, WebPower adapters and other equipment.	
Pop-up	A window that suddenly appears (pops up) when you select an option with a mouse or press a special function key. Usually, the pop-up window contains a menu of commands and stays on the screen only until you select one of the commands. It then disappears. A special kind of pop-up window is a pull-down menu, which appears just below the item you selected, as if you had pulled it down.	
PowerSuite	PC application used to configure and operate Micropack, Minipack, Flatpack2 and Powerpack DC power supply systems. The program is to be run on computers using the MS Windows operating systems.	
RJ-45	Short for Registered Jack-45, an eight-wire connector used commonly to connect computers onto local area networks (LAN), especially Ethernets. RJ-45 connectors look similar to the ubiquitous RJ-11 connectors used for connecting telephone equipment, but they are somewhat wider.	
SNMP	Simple Network Management Protocol, a set of protocols for managing complex networks. The first versions of SNMP were developed in the early 80s. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network. SNMP-compliant devices, called agents, store data about themselves in Management Information Bases (MIBs) and return this data to the SNMP requesters.	
SNMP Agent	An SNMP-compliant device that stores data about itself in Management Information Bases (MIBs) and return this data to the SNMP requesters.	
TCP/IP	Transmission Control Protocol/Internet Protocol A protocol suite used by more than 15 million users with a UNIX association and widely used to link computers of different kinds. The Internet Protocol Suite (commonly known as TCP/IP) is the set of communications protocols used for the Internet and other similar networks. It is named from two of the most important protocols in it: the Transmission Control Protocol (TCP) and the Internet Protocol (IP), which were the first two networking protocols defined in this standard.	
Tunnelling Protocol	The term tunnelling protocol is used to describe when one network protocol called the payload protocol is encapsulated within a different delivery protocol.	
UDP	The User Datagram Protocol (UDP) is one of the core members of the Internet Protocol Suite, the set of network protocols used for the Internet. With UDP, computer applications can send messages, sometimes known as datagrams, to other hosts on an Internet Protocol (IP) network without requiring prior communications to set up special transmission channels or data paths. UDP is sometimes called the Universal Datagram Protocol.	
USB	Universal Serial Bus is a serial bus standard to interface devices to a host computer. USB was designed to allow many peripherals to be connected using a single standardized interface socket and to improve plug and play capabilities by allowing hot swapping, that is, by allowing devices to be connected and disconnected without rebooting the computer or turning off the device. Other convenient features include providing power to low-consumption devices without the need for an external power supply and allowing many devices to be used without requiring manufacturer specific, individual device drivers to be installed.	
VPN	A virtual private network (VPN) is a computer network in which some of the links between nodes are carried by open connections or virtual circuits in some larger network (e.g., the Internet) as opposed to running across a single private network. The link-layer protocols of the virtual network are said to be tunnelled through the larger network. One common application is secure communications through the public Internet, but a VPN need not have explicit security features, such as authentication or content encryption. VPNs, for example, can be used to separate the traffic of different user communities over an underlying network with strong security features.	
WAN	Wide Area Network is a computer network that covers a broad area (i.e., any network whose communications links cross metropolitan, regional, or national boundaries [1]). Less formally, a WAN is a network that uses routers and public communications links [1]. Contrast with personal area networks (PANs), local area networks (LANs), campus area networks (CANs), or metropolitan area networks (MANs) are usually limited to a room, building, campus or specific metropolitan area (e.g., a city) respectively. The largest and most well-known example of a WAN is the Internet.	
WebPower	A common name for the firmware installed in <i>Eltek Valere's</i> controllers -- <i>Compack</i> and <i>Smartpack</i> , web option – and in the external <i>WebPower</i> adapter module. The firmware provides a communication protocol translator, a physical layer conversion and Web server software. <i>WebPower</i> translates the controller's internal protocol into the HTTP protocol over TCP/IP, used to communicate in an Ethernet network, LAN, WAN, VPN or even across the Internet. The <i>WebPower</i> firmware provides a platform-independent graphical user interface (GUI), employed to configure and operate <i>Micropack</i> , <i>Minipack</i> , <i>Flatpack2</i> and <i>Powerpack</i> DC power supply systems using a standard Web browser. In addition, <i>WebPower</i> provides an SNMP Agent, allowing <i>Eltek Valere</i> DC power systems to be interoperable with SNMP enterprise management solutions, which are commonly in use within the Telecommunications industry.	



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